Meeting of the States Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction

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Item 6 of the agenda
Issues of substance and process for the period before the next Review Conference, with a view to reaching consensus on an intersessional process

International activities of Global Partnership Member Countries related to Article X of the Biological and Toxin Weapons Convention

Submitted by: Canada, Denmark, European Union, Finland, Germany, Italy, Japan, Netherlands, Spain, Sweden, United Kingdom, and United States of America

1. The member countries of the *Global Partnership Against the Spread of Weapons and Materials of Mass Destruction* are committed to implementing concrete projects around the world to combat WMD-related terrorism and proliferation. Global Partnership (GP) members have identified strengthening biological security as a key priority for their collective programming efforts, and pursue activities that aim to:

(a) Secure and account for materials that represent biological proliferation risks;

(b) Develop and maintain appropriate and effective measures to prevent, prepare for, and respond to the deliberate misuse of biological agents;

(c) Strengthen national and global networks to rapidly identify, confirm and respond to biological attacks;

(d) Reinforce and strengthen biological non-proliferation principles, practices and instruments; and

(e) Reduce proliferation risks through the advancement and promotion of safe and responsible conduct in the biological sciences.

[1] Current active GP members are: Australia, Belgium, Canada, Chile, Czech Republic, Denmark, European Union, Finland, France, Georgia, Germany, Hungary, Ireland, Italy, Japan, Jordan, Kazakhstan, Republic of Korea, Mexico, Netherlands, New Zealand, Norway, Philippines, Poland, Portugal, Spain, Sweden, Switzerland, Ukraine, United Kingdom and the United States.

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2. In developing and delivering biological programming with partner countries, GP members place great importance on cooperation and assistance under Article X of the Biological and Toxin Weapons Convention (BTWC), which commits states both "to facilitate, and have the right to participate in, the fullest possible exchange of equipment, materials and scientific and technological information for the use of bacteriological (biological) agents and toxins for peaceful purposes" and to "avoid hampering the economic or technological development of States Parties to the Convention or international cooperation in the field of peaceful bacteriological (biological) activities". GP members assess that Article X-relevant international cooperation and collaboration delivered through the Global Partnership contributes significantly to mitigation of global biological threats, whether they be naturally occurring, the result of accidental releases (including from laboratories) or a deliberate biological weapons attack.

3. In accordance with the Final Document of the Eight Review Conference, in which States Parties were encouraged to submit detailed information on their implementation of Article X, the Global Partnership has prepared the following compendium of Article X-relevant projects implemented and/or funded by GP members since December 2016.

I. Africa

Table 1

Project Title	**Agreement between FAO & IZSAM aimed at enhancing diagnostic capacity of veterinary laboratories in African countries**
Partner Country/Region	Botswana, Cameroun, Cote d'Ivoire, Ethiopia, Kenya, Senegal, Tanzania, Uganda
Implementing Country	Italy through Istituto Zooprofilattico Sperimentale Abruzzo Molise
Collaborating Institution(s) or Partner(s)	FAO
Project Value	€ 626,880.96 funded by FAO
Duration	2016-2019
Description	Considering the need to minimize the risk of potential pandemic threats, animal health laboratory networks and diagnostic capacities should be strengthened, and the rapid and accurate diagnosis and reporting of routinely occurring diseases be supported as a sustainable approach. Efforts that strengthen diagnostic capacity are directly tied to the ability of the laboratory to rapidly report results. Laboratory information management systems (LIMS) enable laboratories to track samples from submission to reporting and can facilitate the linkage between diagnostic results and response in the field. In the framework of this project, IZSAM is implementing a LIMS in the Central Veterinary Laboratory of some African Countries, called SILAB for Africa, developed by IZSAM. Currently SILAB for Africa, in different versions, is the official LIMS used in 8 National Veterinary Laboratory: Namibia's CVL, Botswana's NVL, Zimbabwe's CVL, Zambia's CVRI, Tanzanian's TVLA, Uganda's NADDEC, Kenya CVL & KALRO and Ethiopia NAHDIC. In order to strengthening biological security, a new SILABFA module for sample banking has been developed mainly focused to samples received under the EPT2 project in Kenya and Tanzania. (e.g. Marburg, MERS CoV, Rabies, Antrax, Brucellosis, Highly Pathogenic Avian Influenza). Using this module, the users in the lab can manage the samples storage location, the type and the quantity of biological material stored, etc. SILABFA stores all data relating to the stored samples. When samples are received, the user can decide to proceed with analysis of the sample or to simply store the sample until further analysis at a later point in time. The samples stored are identified with the submission numbers and all metadata (owner, sampling date, place, etc.) is recorded in the system. This module has been installed and staff has been trained on this module. Samples received under the EPT2 project have been already collected and registered in the SILABFA-Sample Bank in Kenya and Tanzania. The Sample Bank module can be used alone (Mini_SILAB) and is adapted for interoperability with any external system.

Table 2

Project Title	**Development Research**
Partner Country/Region	Botswana, Egypt, Ethiopia, Guinea-Bissau, Kenya, Ghana, Malawi, Tanzania, Uganda, Zambia, East Africa, Africa
Implementing Country	Sweden, through the Swedish Research Council
Collaborating Institution(s) or Partner(s)	N/A
Project Value	SEK 21,921,000/€ 2,251,656
Duration	2014-2020
Description	Research project grants and research network grants focusing on: prevention, diagnosis and treatment of infectious diseases; improving food security; mitigating spread of resistance to drugs and antibiotics; and improvement of vector control.

Table 3

Project Title	**Fight against malaria in Burkina Faso through education and research**
Partner Country/Region	Burkina Faso
Implementing Country	Italy, through University La Sapienza of Rome
Project Value	€ 3,820,000.00
Duration	2015 - 2017
Description	The project, lasting 36 months, is co-funded by the Italian Government (for 52.4% - € 2,000,000.00) and by 17 Italian and burkinabé institutions. The project is being coordinated by the parasitology Section of the Department of public health and infectious diseases at the University of Rome la Sapienza, which oversees the infrastructure and vocational training components. Scientific institutions of Niger, Burkina Faso and Guinea involved in the National Programmes against Malaria are beneficiaries of the project. The partner institution and coordinator of program activities in Burkina Faso, Guinea and Niger is the "Centre National de Recherche et de Formation sur le Paludisme l'Afrique" (CNRFP) of the Ministry of health of Burkina Faso, which formulated the detailed project together with Sapienza University.

Table 4

Project Title	**Infectious diseases : Clinical and laboratory diagnosis**
Partner Country/Region	Burundi, Eritrea, Kenya, Malawi, Mozambique, Sudan and South Sudan, Tanzania, and Uganda
Implementing Country	Japan

Collaborating Institution(s) or Partner(s)	Suez Canal University
Project Value	In-kind contribution
Duration	June 2015 - March 2018
Description	To provide know-how of detection, diagnosis and comprehensive quality management skill in the laboratory that is necessary to improve infectious disease opeartions and reduction mortality rate among medical officers in African region.

Table 5

Project Title	**Building In-Country Capacity in Africa for Advanced Warning and Surveillance of Infectious Disease Outbreaks**
Partner Country/Region	Democratic Republic of Congo, Guinea, Liberia, Nigeria, Republic of Congo, and Sierra Leone
Implementing Country	Canada - Global Partnership Program Global Affairs Canada
Collaborating Institution or Partner(s)	Public Health Agency Canada - Canada's National Microbiology Laboratory (NML)
Project Value	C$183,000
Duration	2017-2018
Description	Canada's NML is implementing a simple, robust and accurate early warning system at the country level capable of identifying Ebola virus positive individuals, which will enable rapid intervention and will strengthen biosecurity and biosafety.

Table 6

Project Title	**Biosecurity Partnership Programme in East Africa**
Partner Country/Region	East Africa and Kenya
Implementing Country	Denmark
Collaborating Institution(s) or Partner(s)	Government of Kenya, incl. Ministry of Education, Science and Technology; National Commission for Science, Technology and Innovation; Ministry of Health
Project Value	US$2,300,000
Duration	2014-2016/2016-2019
Description	The purpose of the programme is to contribute to the development of national biosecurity and biopreparedness systems to reduce the risk and consequences of biological events. Results include but are not limited to: • A comprehensive biosecurity gap survey, incl. appr. 100 labs.

	• Development of the book "An efficient and practical approach to Biosecurity". • Support to biosecurity legislation, incl. several drafting workshops • Support to biosecurity capacity building, incl. training of appr. 300 university students and academic staff. • Support to biopreparedness capacity building and coordination

Table 7

Project Title	**Armauer Hansen Research Institute (AHRI)**
Partner Country/Region	Ethiopia
Implementing Country	Sweden through the Swedish International Development Cooperation Agency
Collaborating Institution(s) or Partner(s)	N/A
Project Value	SEK 288.000/€ 29.582
Duration	2016-2021
Description	AHRI receiving core-funding from Sweden and Norway in addition to Ethiopian Government contribution, which it uses to support among other things students' research within the scope of the European & Developing Countries Clinical Trials Partnership (EDCTP) programme. These include epidemiological and social studies for characterisation of poverty-related and neglected diseases.

Table 8

Project Title	**Community Health Education, Capacity & Knowledge Building (CHECK) Project"- AID 10991**
Partner Country/Region	Ethiopia; City of Awassa, Areas of South Omo, Sidama, Wolayita, Gamo Gofa, Gedio, Kembata Tembaro, Bench Maji, Gurage e Hadya
Implementing Country	Italy, through UNAIDS
Project Value	€ 500,000
Duration	end 2016- end 2017 (1 year)
Description	The objective of the project is to reduce Communicable Diseases (CDs), including HIV and STIs in the above mentioned areas of Ethiopia, through several mutually reinforcing interventions focused on disease prevention, health promotion and peer support groups strengthening, with special focus on Women and Young People towards ensuring healthy lives and well-being (SDG3) and ending epidemics of AIDS , TB, Malaria & Neglected Tropical Diseases (NTDs) as public health threats by 2030 (SDG3 Target 3:3).

Table 9

Project Title	**The Project for Establishment of Laboratory Surveillance System for Viral Diseases of Public Health Concern**
Partner Country/Region	Gabon
Implementing Country	Japan
Collaborating Institution(s) or Partner(s)	N/A
Project Value	Technical Assistance
Duration	April 2016 – May 2021
Description	To enhance research and development skill of infectious virus diseases of the research institute in Gabon through joint research on acknowledgement of viral hemorrhagic fevers, identification and analysis of pathogens of unknown infectious diseases and infectious virus diseases of public health concern with high priority.

Table 10

Project Title	**Pan-African Network for Rapid Research, Response, Relief and Preparedness for Infectious Diseases Epidemics (PANDORA-ID)**
Partner Country/Region	Gabon, Ghana, Nigeria, Republic of Congo, Sierra Leone, Sudan, Tanzania, Uganda and Zambia
Implementing Country	UNITED KINGDOM: University College London ITALY: National Institute for Infectious Diseases Lazzaro Spallanzani CONGO: Fondation Congolaise pour la Recherche Médicale Project funded by the EDCTP EU programme
Collaborating Institution(s) or Partner(s)	University College London (UCL); Foundation Congolese pour la Recherche Medicale (FCRM); HerpeZ Limited by Guarantee; Bernhard-Nocht-Institut fur Tropenmedizin (BNITM); Southern African Centre for Infectious Diseases (SACIDS); Royal Veterinary College (RVC); Irrua Specialist Teaching Hospital (ISTH); Mercy Hospital Research Laboratory- Njala University, Freetown, Sierra Leone; Public Health England (PHE); Uganda Virus Research Institute (UVRI); Institut fur Virologie-Charité-Universitatsmedizin Berlin; National Institute for Medical Research-Tanzania (NIMR); Eberhard Karls Universitaet Tuebingen (EKUT) Institute of Endemic Diseases (IEND); Ifakara Health Institute Trust (IHI);East, Central and Southern African Health Community (ECSA-HC); Chatham House Centre on Global Health; Noguchi Memorial Institute for Medical Research (NMIMR); Emergency Life Support for Civilian War Victims ONG ONLUS (EMERGENCY ONG ONLUS); Kwame Nkrumah University of Science and Technology (KNUST); Institut de Recherche pour le Developpment (IRD); University of Ghana (UG); Centre de Recherches Médicales de Lambaréné (CERMEL); Africa Center for Diseases Control and Prevention

	(AFRICA CDC); Nigeria Center for Disease Control (NCDC)
Project Value	€ 9,997,501.25
Duration	2018-2022
Description	The overall objective is to strengthen regional and pan-African capacities and systems for enabling rapid and effective response to emerging and re-emerging infectious diseases threats arising from within Africa, or those imported from overseas. We will build on our existing collaborations, and ongoing work with the EDCTP West, Central, East and Southern African networks of excellence to: • develop and setup robust 'ready to go within 48-72 hours' PANDORA-ID-NET outbreak rapid response teams, at each of the four African regions (West, Central, East and Southern Africa) to assist when an outbreak occurs. These will be linked to other regional and global networks on emerging infections. • develop capacities for conduct of research (multidisciplinary operational, anthropological, social science, basic science, translational clinical, clinical trials, implementation research) in two situations: • In the emergency outbreak or epidemic situation. • in the inter-epidemic period. • train, develop and empower (through high quality training and mentorship) younger generation scientists, healthcare workers, laboratory personnel, clinical trialists, ethicists and social scientists to take leadership of emerging infections and the One HEALTH portfolio in all African regions

Table 11

Project Title	**Biosafety & Biosecurity Solutions for Low-Resource Environments**
Partner Country/Region	Ghana and Nigeria
Implementing Country	Canada - Global Partnership Program Global Affairs Canada
Collaborating Institution or Partner(s)	Royal Institute of International Affairs (Chatham House)
Project Value	£181,164
Duration	2017-2018
Description	This Project aims to identify tangible ways and means to "operationalise" low-resource biosafety and biosecurity, initially engaging with existing West African laboratory facilities in Ghana and Nigeria to identify and evaluate a range of technical challenges faced by operating in low-resource settings.

Table 12

Project Title	**Improving Biosecurity and Biosafety in Kenya as part of the Global Partnership**
Partner Country/Region	Kenya
Implementing Country	Netherlands
Project Value	€ 495,000
Duration	1 January 2017 – 31 December 2019
Description	The Dutch National Institute for Public Health and the Environment (RIVM) is conducting the project in order to improve biosafety in Kenya. The RIVM organises trainings in order to raise awareness and instill a sense of responsibility with regard to biosecurity. The institute is also in the process of establishing biosafety guidelines in Kenya. Furthermore, the RIVM plans to compile a National Inventory of Select Agents. The aim of the project is to not only improve biosafety in Kenya but to also enhance biosafety in the region, by including regional partners such as Ethiopia and Tanzania.

Table 13

Project Title	**Strengthening Sustainable Biosafety & Biosecurity in East Africa**
Partner Country/Region	Kenya and Uganda
Implementing Country	Canada - Global Partnership Program Global Affairs Canada
Collaborating Institution or Partner(s)	International Federation of Biosafety Associations (IFBA)
Project Value	C$245,000
Duration	2017-2018
Description	This Project is focusing on the development of sustainable biosafety and biosecurity in East Africa, enhancing multi-sectoral collaboration and fostering partnerships between the Biorisk Management Association of Kenya, the Biosafety & Biosecurity Association of Uganda, the African Union, relevant government ministries and international partners (including IFBA and Global Partnership members) in the development and implementation of comprehensive and sustainable biosafety and biosecurity strategies and capacity in East Africa.

Table 14

Project Title	**Development of a National Biosafety and Biosecurity System in Mali**
Partner Country/Region	Mali
Implementing Country	Canada - Global Partnership Program Global Affairs Canada
Collaborating Institution or Partner(s)	International Federation of Biosafety Associations (IFBA)
Project Value	C$236,000
Duration	2016-2018
Description	This Project is supporting the Government of Mali to mitigate threats posed by infectious diseases in West Africa through the development of a comprehensive national biosafety and biosecurity system.

Table 15

Project Title	**Focal Partnerships within the German Biosecurity Programme**
Partner Country/Region	Morocco, Sudan and Tunisia
Implementing Country	Germany
Collaborating Institution(s) or Partner(s)	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and Robert Koch Institute
Project Value	€13,000,000 (2013-2016) €12,400,000 (2017-2019)
Duration	2013-2019
Description	The German Biosecurity Programme was launched 2013 by the German Federal Foreign Office within the framework of its engagement in the Global Partnership. It is part of the Federal Government's preventive security policy. The goal is to minimise the risks associated with biological substances and pathogens. A further aim is to strengthen public health and promote a responsible approach to research and research findings in partner countries. It is implemented by leading German research institutions and has a total budget of over 18 million Euros for three years (2017-2019). In the focal countries Tunisia, Morocco and Sudan the program cooperates with the respective Health Ministries and subordinated central laboratories and institutions. Activities are implemented within the whole thematic range of the program and according to specific needs. Examples are: • Awareness raising: Implementation of a national risk

	communication system for biological threats, including policy advising, media and communication trainings etc.; • Biosafety and biosecurity: Bio risk management courses and good laboratory practice course; lab organization support; provision of adequate lab equipment and consumables; • Surveillance: Implementation of SOPs and fail-proof surveillance data exchange systems; • Detection and diagnostics: Training in safe and reliable diagnostics; guidance and support (experts, equipment, consumable) for ongoing diagnostic challenges; • Networking: Establishing laboratory networks (e.g. area specific, issue specific, national- and country-level); establishing and training national preparedness plans for biological threats; • Capacity development: Policy advisory and 'ignition' conferences and workshops towards national biosafety and biosecurity policy in the health sector; support for planning, monitoring and evaluation methods and tools for executives concerned with biosafety and biosecurity.

Table 16

Project Title	**Strengthening PMTCT And Paediatric Hiv Treatment Services In Mozambique**
Partner Country/Region	Mozambique; Provinces of Gaza, Maputo and Sofala
Implementing Country	Italy, through UNICEF and Comunità di Sant'Egidio
Project Value	€ 1,345,500.00
Duration	2016-2017 (2 years)
Description	Mozambique has of the highest child mortality rates in the world and also has the third largest burden of HIV-positive pregnant women in sub Saharan Africa. HIV/AIDS contributes a total of 25.4 per cent of the mortality rates for children and women. The objective of the project is to increase coverage and retention in PMTCT and HIV Treatment services by Pregnant Women, Children and Adolescents in selected locations in Gaza, Sofala and Maputo Province by end of 2018, in support of MoH HIV Test & Treat Inception Phase (2016-2018). Most importantly, this proposal will contribute to Provincial and National government targets set forth in the IV National Strategic Plan for the HIV Response 2015-2019; the HIV Programme Acceleration Plan; and, the National Plan for Elimination of Vertical Transmission of HIV; National and Provincial PESS; and, the objectives set forth in the Test & Treat Strategy adopted in 2016.

Table 17

Project Title	**Biosecurity in Lagos State: Provision of a BioBank and Laboratory**
Partner Country/Region	Nigeria
Implementing Country	Canada - Global Partnership Program (GPP) Global Affairs Canada
Collaborating Institution or Partner(s)	Lagos State Ministry of Health
Project Value	C$3,500,000
Duration	2017-2018
Description	GPP is providing a Bio-Safety Laboratory and associated Biobank to be operated by the Lagos State Ministry of Health with the aim to strengthen capabilities to prevent, detect and respond to outbreaks of infectious diseases such as Ebola or Lassa Fever.

Table 18

Project Title	**Ebola Response and Biosecurity in Sierra Leone**
Partner Country/Region	Sierra Leone
Implementing Country	Canada - Global Partnership Program (GPP) Global Affairs Canada
Collaborating Institution or Partner(s)	Public Health England (PHE) Public Health Agency Canada - National Microbiology Laboratory (NML) Global Emerging Pathogens Treatment Consortium (GET) Sierra Leone Ministry of Health
Project Value	C$6,780,000
Duration	2016-2018
Description	As Ebola and other especially dangerous pathogens present significant security concerns, GPP is supporting the Government of Sierra Leone to locate, assess, prioritise and destroy or consolidate all Ebola samples resulting from the 2014-15 outbreak. Phase I activities (March-August 2016) included reconnaissance and data collation at priority laboratories and biosecurity training. Phase II (Sept 2016-Sept 2017) initiated data collection, temporary consolidation of samples and security upgrades at three sites and produced the design for a new "Biobank" and associated lab for securing all samples, which is being provided by GPP in Phase III (Sept 2017-June 2018). Funding is also facilitating technical and scientific support from Canada's NML and PHE.

Table 19

Project Title	**Bilateral Emergency Program in Sierra Leone implemented by Italian NGOs to establish first aid posts for identification and treatment of Ebola patients**
Partner Country/Region	Sierra Leone
Implementing Country	Italy, through NGOs
Project Value	€ 3,000,000
Duration	June 2016 – June 2017
Description	Bilateral Emergency Program in Sierra Leone carried out by Italian NGOs (EMERGENCY, CUAMM, ENGIM, COOPI, DOKITA, AVSI and Associazione Giovanni XXIII) in Freetown (Goderich Hospital run by Emergency), and 3 other areas in the districts of Pujehun, Port Loko, and Bombali

Table 20

Project Title	**Strengthening Biosecurity and Biosafety at South Africa's National Institute for Communicable Diseases (NICD)**
Partner Country/Region	South Africa
Implementing Country	Canada - Global Partnership Program Global Affairs Canada
Collaborating Institution or Partner(s)	National Institute for Communicable Diseases (NICD)
Project Value	C$1,950,000
Duration	2016-2018
Description	Through this project, Canada and South Africa are collaborating to strengthen biological safety and biological security at NICD.

Table 21

Project Title	**Strengthening biosafety and biosecurity in Tanzania**
Partner Country/Region	Tanzania
Implementing Country	Finland, Funded by the Ministry for Foreign Affairs
Project Value	€830,000
Duration	A five year project
Description	This project aims at preventing unintentional and intentional spread of infectious diseases by supporting biosecurity projects in Tanzania. The existence and outbreaks of diseases that are dangerous to life place great strains to the national healthcare system. Efforts to identify microbes that cause infectious diseases

	are vital to any nation's public healthcare system. The goal of the programme is to train Tanzanians of the know-how of making diagnosis of infectious diseases. The goal is also to train Tanzanians to operate related equipment which enables rapid diagnosis of infectious diseases. Local expertise, detection abilities and developing of biosecurity know-how reduces potential biothreat. A Midterm Evaluation by EcoHealth Alliance was conducted in April 2017 showing excellent results of the Project thus far. This project is conducted in bilateral collaboration between The Finnish Center for Biothreat Preparedness (BIOS) /Centre for Military Medicine (SOTLK) and Tanzania Veterinary Laboratory Agency (TVLA), Ministry of Livestock and Fisheries Development, United Republic of Tanzania.

Table 22

Project Title	**Swedish research collaboration with Tanzania**
Partner Country/Region	Tanzania
Implementing Country	Sweden through the Swedish International Development Cooperation Agency
Collaborating Institution(s) or Partner(s)	University of Dar es Salaam (UDSM), Muhimbili University of Health and Allied Sciences (MUHAS), Ardhi University (ARU), Tanzania Comission of Science and Technology (COSTECH)
Project Value	SEK 12,217,8000/ 1,234,974
Duration	2015-2020
Description	The contribution aims at supporting research and innovation in Tanzania. In total, 122 PhD, 55 MSc and 31 post docs will be trained through the research collaboration. Support is also given to research infrastructure, research administration and research grants. The development of capacity is achieved through collaborations between Tanzanian and Swedish universities and institutes

Table 23

Project Title	Basic laboratory training for detection and analysis of pathogens
Partner Country/Region	Zambia
Implementing Country	Japan
Collaborating Institution(s) or Partner(s)	Hokkaido University Research Center for Zoonosis Control
Project Value	In-kind contribution
Duration	October-December 2016
Description	To enhance capacity of basic virus detection skill, analysis skill of detected results in detail and acquire knowledge of necessary

	technology related to transfer of microbiology research and infectious disease diagnosis.

II. Americas

Table 24

Project Title	ViroRed
Partner Country/Region	Argentina, Bolivia, Brazil, Costa Rica, Colombia, Ecuador, Guatemala, México, Nicaragua, Panamá, Paraguay, Perú, Portugal, Uruguay, Venezuela
Implementing Country	Spain (CYTED)
Project Value	€ 30,000/year
Duration	2010-2018
Description	The increase of travel and the speed of communications make respiratory and arthropod-borne viruses common problems for the entire world. ViroRed is a laboratory network involving many countries from Latin America, Spain and Portugal. The activities of ViroRed are mainly focused in implementing and improving diagnostic capacities of these viruses, by means of educational and technological approaches.

Table 25

Project Title	**Swedish research collaboration with Bolivia**
Partner Country/Region	Bolivia
Collaborating Institution(s) or Partner(s)	Universidad Mayor de San Andrés, La Paz, and Universidad Mayor de San Simon, Cochabamba, Bolivia
Implementing Country	Sweden through the Swedish International Development Cooperation Agency
Project Value	SEK 2,112,0000 250,938
Duration	2013-2018
Description	Contribution for the development of research capacity in Bolivia, including supporting the development of research systems and specific research programmes.

Table 26

Project Title	**Development Research**
Partner Country/Region	Bolivia, Brazil, Mexico, Nicaragua
Implementing Country	Sweden, through the Swedish Research Council

Collaborating Institution(s) or Partner(s)	N/A
Project Value	SEK 3,244,000/€ 333,213
Duration	2015-2020
Description	Research project grants and research network grants focusing on: prevention, diagnosis and treatment of infectious diseases; improving food security; mitigating spread of resistance to drugs and antibiotics; and improvement of vector control.

Table 27

Project Title	**Enhanced Biological Security and Disease Surveillance in the Caribbean**
Partner Country/Region	Caribbean
Implementing Country	Canada - Global Partnership Program (GPP) Global Affairs Canada
Collaborating Institution or Partner(s)	Caribbean Public Health Agency (CARPHA) GermFree Inc.
Project Value	C$2,500,050
Duration	2012-2018
Description	To strengthen biosafety and biosecurity capabilities in the Caribbean, Canada's GPP has provided a fully-equipped modular biosafety level three (BSL3) laboratory to the Caribbean Public Health Agency (CARPHA) in Trinidad and Tobago. This new laboratory was completed in January 2014 and formally handed over to CARPHA by the Government of Canada on 12 May 2014. GPP is currently providing ongoing maintenance and operational support to CARPHA to ensure the new facility achieves its objective of strengthening biological security and disease diagnostics capacity in the Caribbean region.

Table 28

Project Title	**OIE Veterinary Legislation Support Programme in Americas**
Partner Country/Region	Latin America: Belize, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Mexico, Nicaragua and Panama
Implementing Country	Canada - Global Partnership Program Global Affairs Canada
Collaborating Institution or Partner(s)	World Organisation for Animal Health (OIE)
Project Value	C$250,000
Duration	2016-2018

Description	Canada is supporting OIE's efforts to integrate considerations pertaining to biological threat reduction into Veterinary Legislation Support Programme (VLSP) veterinary legislation identification missions, and to raise awareness and facilitate expanded communication between relevant agencies in the Regional International Organization for Plant Protection and Animal Health (OIRSA) countries relative to biological threat reduction. The expected result of this project is to strengthen regional health security and improve the preparedness of nations for biological threat reduction by enhancing the veterinary legislative basis in countries of the Americas.

Table 29

Project Title	**Strengthening Export Controls and Border Security in the Americas and the Caribbean**
Partner Country/Region	Latin America and Caribbean
Implementing Country	Canada - Global Partnership Program Global Affairs Canada
Collaborating Institution or Partner(s)	United Nations Regional Centre for Peace, Disarmament and Development in Latin America and the Caribbean (UNLIREC) Organisation of American States (OAS) UNSCR 1540 Committee BTWC Implementation Support Unit VERTIC (the Verification Research, Training and Information Centre) Wilton Park
Project Value	C$5,900,000
Duration	2015-2017
Description	Canada is supporting the enhancement of export controls and border security measures to prevent the proliferation and trafficking of weapons of mass destruction (WMDs), their means of delivery and related materials, including enhanced implementation of strategic trade domestic controls of chemical, biological, radiological and nuclear (CBRN) materials. In the global fight against WMD proliferation, full and effective national implementation of all obligations under multilateral arms control agreements (including the adoption and application of effective export controls and border security measures) plays a critical role. To address these vulnerabilities, this Project is assisting partner states to establish or enhance domestic controls, adopt effective laws and implement comprehensive measures to prevent the proliferation of CBRN weapons and their means of delivery. Tailored activities include national needs assessments, development of legislative application plans and the provision of requisite equipment, training and related technical assistance to strengthen national and regional capacity to prevent, detect and

	respond to CBRN incidents. The Project is also supporting the development and/or enhancement of cargo targeting systems at select, high-volume Latin American and/or Caribbean ports of entry to strengthen capabilities to identify and track shipments of CBRN and other illicit goods and trade flows in and through the region. It also directly support States Parties to the BTWC to fulfill their national obligations, including by facilitating participation at BTWC Meetings (e.g. Meetings of Experts and States Parties) and convening BTWC workshops and events.

Table 30

Project Title	**Legislative Implementation of UNSCR 1540 in LAC – Phase II**
Partner Country/Region	Latin America and the Caribbean (LAC)
Implementing Country	Canada - Global Partnership Program Global Affairs Canada
Collaborating Institution or Partner(s)	Verification, Research, Training and Information Centre (VERTIC)
Project Value	US$275,000
Duration	2017-2018
Description	As part of an ongoing initiative, VERTIC is delivering Phase II of legislative assistance, analysis and outreach to support legislative, regulatory and related assistance in LAC countries' national legal frameworks, through CBRN legislation strengthening export control and border security measures in the implementation of UNSCR 1540.

Table 31

Project Title	**International Cooperation with Ministry of Health from Equatorial Guinea**
Partner Country/Region	Republic of Equatorial Guinea
Implementing Country	Spanish Agency of International Cooperation and Development (AECID)
Project Value	€ 200,000
Duration	2015 - 2018
Description	Technical Assistance to National Programmes for Endemic Diseases Control of Ministry of Health, Equatorial Guinea : Strategic Programmes of Malaria, Neglected Tropical Diseases, HIV/AIDS and TB

III. Asia

Table 32

Project Title	**Mitigating Biological Security Risks in the ASEAN region**
Partner Country/Region	Association of Southeast Asian Nations (ASEAN) Member countries (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam)
Implementing Country	Canada - Global Partnership Program Global Affairs Canada
Collaborating Institution or Partner(s)	Association of South-East Asian Nations (ASEAN) Secretariat Mekong Basin Disease Surveillance Network (MBDS) BlueDot Health System Research Institute (HSRI), Thailand International Federation of Biosafety Associations (IFBA) Research Institute for Tropical Medicine (RITM), Philippines INTERPOL World Health Organization (WHO)
Project Value	C$11,787,601
Duration	2013-2018
Description	In partnership with ASEAN member countries, Canada is implementing a program of work to strengthen capacities to detect, rapidly identify and diagnose highly dangerous pathogens and emerging infectious diseases (e.g. Ebola, MERS-CoV) that present regional and global threats. Specific project activities and implementing partners include: • Strengthening the Emerging and Dangerous Pathogens Laboratory Network (EDPLN) in Asia, in partnership with the World Health Organization and the ASEAN Plus Three Partnership Laboratories (APL) network; • Establishing an early warning and disease surveillance system in the region (BlueDot); • Enhancing ties and collaboration between the Mekong Basin Disease Surveillance Network (MBDS) and the Asia Partnership on Emerging Infectious Disease Research (APEIR); • Field Epidemiology Training (FETN); • INTERPOL training on Safety, Security and Surveillance of Microbiological Materials and Emerging Technologies (S3OMMET); • Strengthening Bio Threat Surveillance in Cambodia, Laos PDR, Myanmar and Vietnam (CLMV) Countries (MBDS); • Biosafety Engineering and Control for Health Laboratories in ASEAN (Ministry of Health Thailand);

	• ASEAN Emergency Operations Center (EOC) Network Development and Activities (Ministry of Health Malaysia); • Strengthening Biosafety and Biosecurity (Ministry of Health Laos PDR); • Strengthening Biosafety & Biosecurity Competency in South East Asia (IFBA); • Strengthen Response Capabilities for Emerging and Re-emerging Disease at the Research Institute for Tropical Medicine in Philippines.

Table 33

Project Title	**Development Research.**
Partner Country/Region	Bangladesh, India, Malaysia, Pakistan, Sri Lanka
Implementing Country	Sweden, through the Swedish Research Council
Collaborating Institution(s) or Partner(s)	N/A
Project Value	Contribution in 2017: SEK 8,279,000/€ 850,393
Duration	2015-2020
Description	Research project grants and research network grants focusing on: prevention, diagnosis and treatment of infectious diseases; improving food security; mitigating spread of resistance to drugs and antibiotics; and improvement of vector control.

Table 34

Project title	**CBRN 46. Enhancement of CBRN capacities of South East Asia in addressing CBRN risk mitigation concerning CBRN first response, biosafety and biosecurity, awareness raising and legal framework**
Partner country/region	Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam
Implementing country	Euroean Union; Spain (FIIAPP) Italy (FORMIT Foundation – (Luigi Sacco University Hospital)
Project value	€3,000,000
Duration	36 months (2015-2018)
Description	Project funded by the EU Instrument contributing to Stability and Peace. Capability assessment and Capacity building in biosafety and biosecurity, including bio-risk and waste management: • Mapping of regional bio-laboratories and facilities (both public and private) including information on state of the art, available equipment and areas of expertise; • Organisation and provision of a training programme on

	biosafety, biosecurity and bio-risk management including specific training for scientists and laboratory technicians on laboratory equipment and maintenance; • Development of a flexible and sustainable training system applicable to a broad range of countries and government structures on biosafety and biosecurity standards and procedures in BSL2+ and BSL3 laboratories; • Development of a training programme for relevant experts on methodology to design, build, and monitor high level security containment biological laboratories (BSL2+ and BSL3); • Development of a training programme for laboratory experts on guidance and regulations (WHO/HSE/GCR/2012.12) concerning the transport of infectious substances; • Development of a training programme for laboratory experts on safety and security procedures related to the management of biological waste; • Organisation of workshops to improve regional cooperation and harmonisation with international standards on the safe and secure management of biological waste.

Table 35

Project Title	**Operation Petrichor: Cross-border Collaboration on Biological Threat Mitigation**
Partner Country/Region	Cambodia, Laos, Myanmar and Vietnam
Implementing Country	Canada - Global Partnership Program Global Affairs Canada
Collaborating Institution or Partner(s)	International Criminal Police Organization (INTERPOL)
Project Value	C$500,000
Duration	2015 - 2017
Description	This Project is developing cross-border collaboration to better manage infectious diseases in Southeast Asia. The expected outcome of this project is to enhance the capacity of Cambodia, Laos, Myanmar and Vietnam to better prevent, detect and respond to trans-boundary infectious disease biological threats, whether deliberately caused or naturally occurring, on both a national and regional basis.

Table 36

Project Title	**Establishment of German-Georgian, German-Kazakh networks for biosecurity and diagnosis of dangerous infectious diseases**
Partner Country/Region	Georgia, Kazakhstan
Implementing Country	Germany
Collaborating Institution(s) or Partner(s)	Bundeswehr Institute for Microbiology Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
Project Value	€1,900,000 (2013-2016) €1,800,000 (2017-2019)
Duration	2013-2019
Description	The aim of the projects in Georgia and Kazakhstan is to develop long-lasting networks within the framework of standardized detection, diagnostics and monitoring of highly pathogenic agents, awareness raising in the participating countries. Activities include the implementation of quality assessed diagnostic assays in order to conduct epidemiological investigations and establish a monitoring system (surveillance), trainings with regard to biosafety and biosecurity in dealing and handling highly pathogenic agents and laboratory equipment support.

Table 37

Project Title	**Parliamentarians for Global Action Biological Weapons Convention - Campaign Indonesia**
Partner Country/Region	Indonesia
Implementing Country	Netherlands
Project Value	€ 45,076 (Dutch contribution: € 25,000)
Duration	June 2017 – December 2017
Description	Parliamentarians for Global Action (PGA) is currently conducting a project that aims to better the implementation of the Biological Weapons Convention (BWC) in Indonesia. The second aim of this project is to better Indonesia's adherence to the obligations of the Security Council resolution 1540. PGA members are parliamentarians across the world who work together in order to solve international issues. They do this by raising awareness among local parliamentarians.

Table 38

Project Title	**SB150 - Microbiology biosafety cabinet training and maintenance**
Partner	Kyrgyzstan and Tajikistan- Central Asia

Country/Region	
Implementing Country	United Kingdom – Counter Proliferation and Arms Control Directorate, Ministry of Defence (MOD)
Collaborating Institutes or Partners	UK – Defence Science and Technology Laboratory, Animal and Plant Health Agency Tajikistan - Tajik Research Institute of Preventative Medicine. Kyrgyzstan – Biofactory CJC "Altyn-Tamyr" USA – Eagleson Institute
Project Value	US$44,500
Duration	1 year : Feb 2017 – Sep 2017
Description	To promote improved bio-safety practices, UK and other donors to Tajikistan have provided biosafety cabinets as essential items of equipment to improve laboratory safety. To ensure that these cabinets remain functional and safe, regular maintenance and certification is required. Building upon previous training provided, this project has evaluated and supported the development of scientist from Tajikistan and from Kyrgyz Republic. The project included a seminar to promote the importance of these activities with Institute Directors and relevant Ministry officials. • The project has provided further training to allow key Tajik and Kyrgyz individuals to monitor and approve the performance of cabinets within their institutes and also to offer their skills to other in-country institutes. • This work supports the wider adoption of improved biosafety practices.

Table 39

Project Title	**T2119 – Development of capabilities in both arbovirus and arthropod vector identification in Tajikistan.**
Partner Country/Region	Tajikistan – Central Asia
Implementing Country	United Kingdom – Counter Proliferation and Arms Control Directorate, Ministry of Defence (MOD)
Collaborating Institutes or Partners	UK – Defence Science and Technology Laboratory, Natural History Museum, Public Health England. Tajikistan — Institute of Zoology and Parasitology, Tajik Research Institute of Preventative Medicine.
Project Value	US$430,000
Duration	2 years : Nov 2015 – Apr 2017
Description	Previous UK funded work that has identified the presence of a number of pathogenic viruses including Crimean-Congo haemorrhagic fever virus (CCHF), West Nile Fever Virus, Issyk-Kul virus and Tick Borne Encephalitis virus in the Tajikistan. This two year project has aimed to strengthen the surveillance

	skills and to instil the safe and secure working practices developed in previous UK funded projects. This work addresses the requirement for sustainable national surveillance and diagnostic capabilities for vector-borne viral diseases within Tajikistan and has included establishing collaborations with UK experts at Public Health England and the Natural History Museum. • The project has successfully embedded and linked capabilities in arthropod vector identification, virus detection and arbovirus disease outbreak surveillance in Tajikistan. • Enhanced surveillance has identified a previously unrecognised focus of CCHF in the northern Tajikistan. • Cases of CCHF in Tajik health workers has been largely eliminated during the life span of the UK programme as a result of increased hazard awareness and improved biosafety controls.

Table 40

Project Title	**T2198 – Molecular characterisation of field isolates and improving surveillance for rabies in Tajikistan.**
Partner Country/Region	Tajikistan – Central Asia
Implementing Country	United Kingdom – Counter Proliferation and Arms Control Directorate, Ministry of Defence (MOD)
Collaborating Institutes or Partners	UK – Defence Science and Technology Laboratory, Animal and Plant Health Agency, University of Surrey. Tajikistan – National Center for Veterinary Diagnostics, State Sanitary Epidemiological Surveillance Service, State Scientific and Research Institute for the Forestry Agency, Institute of Problems of Biological Safety
Project Value	US$450,000
Duration	3 years : Feb 2016 – Jan 2019
Description	Reported cases of Rabies have increased in Tajikistan in the past ten years. The control of the disease requires appropriate surveillance, accurate laboratory diagnosis and an understanding of disease epidemiology. This project has included the training of scientists in safe and effective surveillance and diagnostic approaches, using internationally recognised diagnostic procedures. Improving biosafety and biosecurity in collaborating institutes has been an underpinning component of the project. Initiatives to raise public and official awareness of this treatable disease are addressed within the project. Expected impact includes policy relevant information on the spread of rabies in the region. • The project is providing tools and training to embed molecular diagnostic techniques to internationally recognised standards. • Improvements in diagnostic capabilities have been supported

	by improvements in surveillance both in animals and people. • Training and equipment for enhanced biosecurity and biosafety have been provided. • Public engagement activities are informing national disease control strategies and enhancing public disease awareness.

Table 41

Project Title	**T2199 – Improving capabilities to detect and characterise Brucella in the veterinary and public health sectors in Tajikistan.**
Partner Country/Region	Tajikistan – Central Asia
Implementing Country	United Kingdom – Counter Proliferation and Arms Control Directorate, Ministry of Defence (MOD)
Collaborating Institutes or Partners	UK – Defence Science and Technology Laboratory, Animal and Plant Health Agency (APHA) Tajikistan – National Center for Veterinary Diagnostics, State Sanitary Epidemiological Surveillance Service, Dushanbe Dairy Kombinat
Project Value	US$450,000
Duration	3 years : Jan 2016 – Dec 2018
Description	Brucellosis remains a significant human and animal health disease worldwide, including in Tajikistan. A previous UK funded project achieved notable improvements in biosafety, biosecurity and diagnostic capabilities. This follow-on project seeks to embed and enhance these skills, and to further develop molecular diagnostic capabilities. The focus of all work is building capability to work safely and securely with Brucella and other pathogens, building links with Western scientist and international reference laboratories (APHA), and embedding internationally accepted diagnostic approaches and reporting transparency. Fundamental to the project is raising both public and official awareness of the significance of brucellosis in Tajikistan. • The project is providing tools and training to embed molecular diagnostic techniques to internationally recognised standards. • Training and equipment for enhanced biosecurity and biosafety have been provided. • Brucella has been identified in people, livestock and milk products. • The project has resulted in a joined-up surveillance network of veterinary and human health surveillance activities.

Table 42

Project Title	**Improved preparedness for outbreaks of zoonotic diseases in Tajikistan**

Partner Country/Region	Tajikistan
Implementing Country	Sweden, through the Swedish University of Agricultural Sciences
Collaborating Institution(s) or Partner(s)	UK Defence Science and Technology Laboratory (dstl)
Project Value	SEK 800 000 /€ 90,000
Duration	2017
Description	Contribution from the Sida administered by the Ministry for Foreign Affairs; biosecurity outbreak simulation to test the ability of national authorities in Tajikistan to respond to outbreaks and prevent and manage crises; practical workshop to develop standard operating procedures and good laboratory practices based on Swedish-Tajik bilateral cooperation.

Table 43

Project Title	**The Project for Capacity Development for Medical Laboratory Network on Biosafety and Examination of Highly Hazardous infectious Pathogens**
Partner Country/Region	Vietnam
Implementing Country	Japan
Collaborating Institution(s) or Partner(s)	N/A
Project Value	Technical Assistance
Duration	July 2017- July 2022
Description	To improve the medical laboratory network on biosafety and enhance examination skill of infectious pathogens including highly hazardous infectious pathogens

IV. Europe

Table 44

Project Title	**Ecology and evolution of avian influenza virus (AIV) in wild birds in Georgia and establishing the host population structure.**
Partner Country/Region	Caucasus - Georgia
Implementing Country	United Kingdom
Collaborating Institution(s) or Partner(s)	The Defence Threat Reduction Agency (DTRA), US; The University of Cambridge, UK; The Animal and Plant Health Agency (APHA), UK; The National Centre for Disease Control, Georgia

Project Value	£300,000
Duration	3 years (2014 – 17)
Description	Study objectives The objectives of this study were to: • Isolate and geographically map circulating AIV strains • Establish the role of wild birds in disseminating AIV • Understand the evolutionary dynamics of AIV in the Caucasus region • Study the migration routes, population structure and intensity of contacts during migration • Model the risk of AIV spread from other areas into Georgia • Assist the integration of Georgia into international AIV surveillance and research. Study overview Over ten thousand samples for avian influenza viruses were collected and analysed from wild birds in the Republic of Georgia. This density of data from one key study area, on the boundary between Europe and Asia (Eurasia), where migratory flyways overlap, is unparalleled globally. As well as fully characterizing more than 60 low pathogenic avian influenza viruses, highly pathogenic avian influenza (HPAI) H5N8 viruses in both the 2015 and 2016/2017 diffusion waves and an HPAI H5N1 virus from the 2.3.2.1c clade in 2016 were isolated. The population genetics work yielded a critical insight into the inter-connectivity between bird populations throughout Eurasia and will improve models of the global dispersion of AIV. This project has provided valuable data from a geographically strategic site to improve understanding of AI within wild bird species and thus the risks of incursion from wild birds into domestic birds. Project conclusions and potential follow-on activities Future needs: addressing logistical sustainability issues on a longer-term basis. Movement away from 'training' of individuals in set tasks, as they then just move on; more focus on education capability and opportunities for sustainability. Continued engagement with the Georgian Government and competent authorities to advocate for future international infectious disease collaborations and integration into the international scientific community. Funding support to maintain surveillance for AIVs and to extend to other pathogens of concern such as the Newcastle Disease virus.

Table 45

Project Title	**Strengthening biosafety and measures to prevent and monitor Crimean Congo hemorrhagic fever (CCHF) in Kosovo**
Partner Country/Region	Kosovo1
Implementing Country	Germany
Collaborating Institution(s) or Partner(s)	Bernhard Nocht Institute for Tropical Medicine
Project Value	€ 260,000 (2013-2016) € 160,000 (2017-2019)
Duration	2013-2019
Description	The goal is to strengthen the capabilities for the prevention and control of Crimean-Congo haemorrhagic fever in Kosovo. This includes, inter alia, training in safe and reliable diagnostics and guidance and support (experts, equipment, consumable) for ongoing diagnostic challenges. This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence.

Table 46

Project Title	**Development of open online university-level educational modules on biosecurity using established global digital education platforms.**
Partner Country/Region	United Kingdom
Implementing Country	United Kingdom, Foreign & Commonwealth Office
Collaborating Institution(s) or Partner(s)	Biosecure Ltd, UK Ministry of Defence, UK
Project Value	£61,500
Duration	9 months (June 2017-March 2018)
Description	This project aims to develop and promote a standalone, online English-language course on biosecurity issues accessible to all via the FutureLearn Massive Open Online Course (MOOC). Worldwide there are few dedicated university modules addressing biosecurity. Where modules exist, they are predominantly classroom taught (passive learning), with notable divergences in the content, scope and quality. There are very few online courses on the MOOC platform that address issues pertaining to biosecurity. Currently, only four online courses

	such on such issues. Each of these are taught courses, and therefore only available at certain times of the year. This project will build upon the joint UK-Canada funded publication 'Preventing Biological Threats: What can you do?: A guide to biological security issues and how to address them' produced by Bradford University (2015), updating and amending content in line with new developments in the field and in light of a new international certification in biosecurity, in order to deliver open-access online training tools, underpinned by best practice in active and blended learning. The purpose of the course is to ensure that students gain a comprehensive understanding of the biosecurity challenges inherent in the life sciences, responses to risks, and their place in ensuring that relevant science and technology is used safely and securely. To that end, the overarching learning objectives as set out in Preventing Biological Threats are to enable students to a) Assess, evaluate and make informed judgements about biological benefits and threats and global responses to them. b) Evaluate the biosecurity aspects of scientific research and industrial processes, and ensure their own work is responsibly conducted, and c) Collaborate with others in government, academia or industry to inform and educate colleagues about biosecurity issues. The project is divided into three phases: **Phase one (complete)** sees the development of a detailed implementation plan through the performance of six activities (background research, gap analysis, identification of experts to present material, development of a method to review material, review material & development of a recording plan). This phase was designed to review the source materials (Preventing Biological Threats and the body of knowledge contained in the IBA Biosecurity certification), describe how they will be improved, and decide expert engagement and a detailed timeline to accomplishing the project. **Phase two (ongoing)** will encompass the recording and editing of the substantive material, including up to 20 videos, each presented by a suitable expert and making use of updated materials. **Phase three (ongoing)** comprises the construction of the course, including integrating subject matter videos and team-based learning tools. Course content will be supplemented by purpose-written multiple-choice questions for use in assessing learning impact and for final certification in the course. The University of Bath will conduct an internal review and testing with a pool of students, before the final sign-off and online launch of the course.

Table 47

Project Title	**Projects on the Prevalence and Diagnostics of Glanders, Brucella, Crimean-Congo-haemorrhagic fever and African swine fever in Ukraine and the establishment of a German-Ukraine initiative on risk management for zoonotic diseases**
Partner Country/Region	Ukraine

Implementing Country	Germany
Collaborating Institution(s) or Partner(s)	Bernhard Nocht Institute for Tropical Medicine Bundeswehr Institute for Microbiology Friedrich-Loeffler-Institute Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
Project Value	€1,500,000
Duration	2016-2017
Description	The aim of the projects in Ukraine is to develop long-lasting networks on the risk management of infectious diseases within the framework of standardized detection, diagnostics and monitoring of highly pathogenic agents. Activities include the implementation of quality assessed diagnostic assays in order to conduct epidemiological investigations, trainings with regard to biosafety and biosecurity in dealing and handling highly pathogenic agents and laboratory equipment support.

Table 48

Project Title	**Education and awareness-raising in Ukraine (Project P633)**
Partner Country/Region	Ukraine
Implementing Country	United Kingdom, Ministry of Defence
Collaborating Institution(s) or Partner(s)	Science and Technology Center in Ukraine Palladin Institute of Biochemistry of the National Academy of Sciences of Ukraine
Project Value	US$371,100
Duration	3.5 years, commencing 01 July 2014
Description	At the meeting of States Parties to the Biological and Toxin Weapons Convention in December 2008, it was recognised that scientists working in the life sciences were not well aware of the concept of dual-use. It was agreed that education and awareness-raising amongst life science researchers could help to prevent the malicious application of knowledge and/or technology. There is no doubt that, due to the revolutionary progress in the life sciences, access to information, technologies and materials which may be used with malicious intent is becoming increasingly easy and affordable for the vast majority of countries, certain groups and individuals. The main objectives of this project are to collect information, develop a network and to disseminate knowledge on biosafety, biosecurity and bioethics amongst life sciences experts, specialists in the field of biotechnology and pharmaceutical industries; and to prepare and submit to the Government of Ukraine, relevant ministries, agencies and universities, recommendations on the need to implement obligatory curriculum covering biosafety, biosecurity, and dual-use for students studying biology, medicine and agrarian sciences at

	university level. Specific project activities to date have included i) the development of guidelines and training materials on biosecurity, biosafety and bioethics for teachers, lecturers and mentors in the medical, biological and agricultural sciences, ii) the translation and printing of the joint UK and Canadian-funded publications 'Preventing Biological Threats: What You Can Do?' and 'Biological Security Education Handbook: The Power of Team-Based Learning' and iii) development and maintenance of the website www.bsseducation.com.ua. In order to develop and improve the teaching methods, the materials developed during the course of this project have been presented at well-attended regional workshops and conferences, and International symposia. Reference material and resources from these symposiums, as well as details of the testing of the proposed educational module; have been specified on the website. Implementation of this project will make a significant contribution to the development of a reliable biosecurity and biosafety system in Ukraine, and may serve as an example for other countries. The project is due to complete in December 2017.

V. Middle East

Table 49

Project Title	**Iraq Autonomous Region of Kurdistan. Realization and implementation of an information system for sanitary monitoring in the autonomous region of Kurdistan - Iraq**
Partner Country/Region	Iraq
Implementing Country	Italy
Collaborating institution(s)/partner(s)	University Tor Vergata of Rome
Project Value	€ 1,605,601.00
Duration	36 months
Description	The initiative aims at extending to the whole Iraqi Kurdistan Region the health information system set up in a recently concluded pilot project. The information system will be able to collect, analyze, disseminate and utilize data regarding disease occurrence, vaccinations, child-births and deaths. These data, registered in all the health centers and hospitals of the Region, will be key for assessing the health status of the internal displaced persons and refugees, assessing the health needs and programming the health services. Training of local staff will be delivered to assure a proper management of the information system and decision making process, including post university education aimed at institutional building and project's sustainability.

Table 50

Project Title	**Biosecurity Engagement in Iraq**
Partner Country/Region	Iraq
Implementing Country	Canada - Global Partnership Program Global Affairs Canada
Collaborating Institution or Partner(s)	CRDF Global
Project Value	US$699,432
Duration	2016-2018
Description	To improve laboratory equipment operation and maintenance standards in Iraq, CRDF Global will implement the following activities: • basic laboratory equipment maintenance and repair training for Iraqi experts; • implementation of a biorisk management train-the-trainer course involving international subject matter experts; • promotion of biorisk management through a comprehensive curriculum on responsible science.

Table 51

Project Title	**Bioterrorism Risks and Controls Workshop for Iraq**
Partner Country/Region	Iraq
Implementing Country	Canada — Global Partnership Program Global Affairs Canada
Collaborating Institution or Partner(s)	International Criminal Police Organization (INTERPOL)
Project Value	C$107,900
Duration	2015-2017
Description	To enhance the capacity of the Government of Iraq to better prevent, detect, and respond to biological threats, arising as a result of deliberate acts of terror, and address threats posed by the potential acquisition and use of biological weapons by Daesh.

Table 52

Project Title	**CBRN 34. Strengthening Capacities in CBRN event response and related Medical Emergency response under strengthened CBRN event preparedness**
Partner Country/Region	Iraq, Jordan, Lebanon
Implementing Country	European Union; Leader of the Project: Military Institute of Hygiene and Epidemiology (Poland); Partners: FIIAPP (Spain), ICIS (Italy),
	Military Institute of Chemistry & Radiometry, University of Rome Tor Vergata (Italy)
Project Value	€3,914,034
Duration	10-Apr-14 / 09-Apr-17
Description	Project funded by the EU Instrument contributing to Stability and Peace.
	The main aim of the CBRN CoE initiative is to enhance national CBRN policies and capacities in third partner countries and to promote national, regional and international cooperation in CBRN risk mitigation. The origin of the risk can be criminal (proliferation, theft, sabotage and illicit trafficking), accidental (industrial catastrophes, in particular chemical or nuclear, waste treatment and transport) or natural (mainly pandemics). The CBRN CoE initiative supports the reinforcement of the institutional capacity needed to fight against this risk.

Table 53

Project Title	**Enhancing Biosecurity capacities in Jordan**
Partner Country/Region	Jordan
Implementing Country	Canada - Global Partnership Program (GPP)
	Global Affairs Canada
Collaborating Institution or Partner(s)	Middle East Scientific Institute for Security (MESIS)
	Wilton Park
	Jordanian Armed Forces (JAF) Royal Medical Services (RMS)
	Jordanian Ministry of Health (MOH)
	International Criminal Police Organization (INTERPOL)
	United Kingdom Ministry of Defence (MoD)
	Public Health England (PHE)
Project Value	C$7,100,566
Duration	2014-2018

Description	Since 2012, GPP has committed over $51 million worth of equipment, infrastructure, training and related support to assist Jordan to guard against potential chemical, biological, radiological and nuclear (CBRN) incidents arising from Syria and Daesh. In 2017, GPP is supporting Jordan through the provision of equipment, supplies and training (with support from UK MOD and PHE) to make full and effective use of the mobile lab provided to JAF-RMS and the modular laboratory to the MOH. GPP is also supporting construction of a CBRN training facility for JAF, working through INTERPOL to strengthen operational capacity of law enforcement agencies in Jordan to prevent, detect and respond to biological incidents and continues to support the Biological Risk Management & Genomics Training Center at the Jordan University of Science and Technology.

Table 54

Project Title	**OIE Veterinary Education Twinning between the Royal Veterinary College (RVC)/Jordan University of Science and Technology (JUST).**
Partner Country/Region	Jordan; Middle East regional.
Implementing Country	Co-funded by UK IBSP and USA (DTRA).
Collaborating Institution(s) or Partner(s)	RVC; JUST; UK IBSP; DTRA
Project Value	Approximately €500,000
Duration	3 years; due to complete March 2018.
Description	Long-term development of veterinary services capacity in Middle East and North Africa (MENA) in partnership with the region's premier veterinary science faculty at JUST. This partnership aims to share best practice in veterinary public health between Europe and the MENA region, and build capacity in terms of undergraduate and postgraduate education in veterinary medicine, scientific research and disease control. It seeks to promote concepts of bio-threat awareness and reduction, and to spread a culture of ethical science by building improved capacity for biosecurity, modern diagnostics, and disease surveillance. It will also enhance capability for research on endemic and emerging diseases, support innovative academic practice and provide advice and guidance for JUST's aspirations to gain course accreditation from the European Association of Establishments for Veterinary Education (EAEVE).

Table 55

Project Title	**Development Research.**
Partner Country/Region	Lebanon, Middle East
Implementing Country	Sweden, through the Swedish Research Council

Collaborating Institution(s) or Partner(s)	N/A
Project Value	SEK 567,000/€ 58,240
Duration	2015-2020
Description	Research project grants and research network grants focusing on: prevention, diagnosis and treatment of infectious diseases; improving food security; mitigating spread of resistance to drugs and antibiotics; and improvement of vector control.

VI. Multi-regional and global programming

Table 56

Project Title	**Countermeasure for Communicable Diseases**
Partner Country/Region	Afghanistan, Brazil, Gabon, Ghana, Serbia, and Zimbabwe
Implementing Country	Japan
Collaborating Institution(s) or Partner(s)	Center for International Collaborative Research, Nagasaki University
Project Value	In-kind contribution
Duration	August – September 2017
Description	To enhance capacity of administrative officials on identifying public health related issues each country faces and offer possible countermeasures

Table 57

Project Title	**Promoting Universality and Implementation of the Biological and Toxin Weapons (BTWC)**
Partner Country/Region	Africa, Caribbean and Latin America
Implementing Country	Canada - Global Partnership Program Global Affairs Canada
Collaborating Institution or Partner(s)	Parliamentarians for Global Action (PGA)
Project Value	C$255,000
Duration	2016-2018
Description	To promote universality and implementation of the BTWC in Africa, Latin America and Caribbean and to enhance national implementation measures for the Convention.

Table 58

Project Title	**European and Developing Countries Clinical Trials Partnership (EDCTP)**
Partner Country/Region	Africa and Europe
Implementing Country	Sweden through the Swedish International Development Cooperation Agency
Project Value	SEK 37,500,000/€ 3,851,882
Duration	2015-2020
Description	The European & Developing Countries Clinical Trials Partnership (EDCTP) aims to accelerate the development of new or improved drugs, vaccines, microbicides and diagnostics against HIV/AIDS, tuberculosis and malaria as well as other poverty-related infectious diseases in sub-Saharan Africa, with a focus on phase II and III clinical trials.

Table 59

Project Title	**CBRN 36: MediPIET Further Development and Consolidation of the Mediterranean Programme for Intervention Epidemiology Training (IfS/2013/329-859)**
Partner Country/Region	Albania, Algeria, Armenia, Bosnia & Herzegovina, Egypt, former Yugoslav Republic of Macedonia, Georgia, Jordan, Kosovo1, Lebanon, Libya, Moldova, Montenegro, Morocco, Palestine2, Serbia, Tunisia, Ukraine. Two observer countries: Turkey and Israel. As members of the Scientific Advisory Board: Greece, France and Spain. 1. This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence. 2. This designation shall not be construed as recognition of a State of Palestine and is without prejudice to the individual positions of the Member States on this issue.
Implementing Country	Spain (Consortium FIIAPP – ISCIII)
Project Value	€6,450,000
Duration	January 2014 to December 2017
Description	Project funded by the EU Instrument contributing to Stability and Peace. MediPIET is a EuropeAid-DEVCO funded project under the Instrument contributing to Stability and Peace, linked to the Chemical, Biological, Radiological and Nuclear Centres of Excellence initiative – CBRN CoE. The Consortium FIIAPP-ISCIII, with the scientific leadership of ECDC, leads the project. This Project has been established under a regional perspective to

	contribute to the overall objective of enhancing health security in the Mediterranean basin by supporting capacity building for prevention and control of natural or man-made health threats posed by communicable diseases and other threats through a sustainable training programme in intervention epidemiology. The MediPIET project is aimed at consolidating a competent workforce in intervention epidemiology to carry out essential public health functions for prevention and control of national and cross-border challenges posed by communicable diseases and other health threats enhancing the biological aspect of CBRN CoE. The main objectives are: • Establishing a network of epidemiologists and trainers in field epidemiology among Public Health institutions of the participating countries in order to contribute to the reinforcement of the prevention and response to health threats • Training field epidemiologists in charge of the essential activities of public health for the prevention and control of communicable diseases and other risks, with a common language in the region • Promoting the collaboration, the exchange of experiences and knowledge between the countries of the Mediterranean and the commitment at the sustainability at national and regional levels • Reinforce institutional capacity at national and regional levels The above objectives are achieved through: • A two years fellowship programme • 18 training modules with learning by doing methodology for fellows and additional participants • 12 training of trainers • International Assignments • Annual Scientific Conference • Establishment of a network of Junior and Senior epidemiologists, network of Training Sites, a Training Centres Forum.

Table 60

Project Title	**Capacity Building: developing sustainable international collaborations on animal, public, and environmental health in Ibero-America.**
Partner Country/Region	Argentina; Brazil; Chile; Peru; Spain
Implementing Country	United States
Project Value	€266,641
Duration	01/01/2017-31/12/2018

Project Title	**Capacity Building: developing sustainable international collaborations on animal, public, and environmental health in Ibero-America.**
Description	We will create a network for strategic research partnership in Ibero-America, including those in one of the OVPR-identified priority regions.

Table 61

Project Title	**DengueTools**
Partner Country/Region	Brasil, France, Germany, Malaya, Singapore, Spain, Sri Lanka, Switzerland, Thailand, United Kingdom
Implementing Country	Sweden (EC FP7 Health)
Project Value	€5,606,488
Duration	2012-2016
Description	Dengue fever is a mosquito-borne viral disease estimated to cause about 50-100 million infections worldwide every year, of which 25,000 are fatal. Global incidence has risen rapidly in recent decades: some 2.5 billion people – two fifths of the world's population — are now at risk, mainly in the tropics and sub-tropics, but climate change and travel patterns have also contributed to the introduction of Dengue fever even in Europe. DengueTools endeavours to achieve better diagnosis, surveillance, prevention, prediction and/or prevention of the spread of Dengue fever to previously uninfected regions (including Europe) in the context of climate change.

Table 62

Project Title	**Improvement of epidemiological and serological tools for diagnosis and control of Brucellosis in the Mediterranean region (Brucmednet)**
Partner Country/Region	Countries of Mediterranean Region: Algeria, Greece, Italy, Portugal, Tunisia
Implementing Country	Italy through Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise in the frame of ARIMNet2 - Coordination of Agricultural Research in the Mediterranean; FP7-ERANET-2013 RTD – KBBE.2013.1.4-0.3; Grant agreement no. 618127 ARIMNet2 topic A3 "Developing sustainable production in the context of increasing ecological and climate stresses – Common Mediterranean challenges in animal and plant health"
Collaborating Institution(s) or Partner(s)	Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise (IZSAM), Istituto Zooprofilattico Sperimentale della Sicilia IZSSi, Hellenic Agricultural Organization DEMETER, Faculty of Veterinary Medicine Benha University (BVM), Instituto Nacional de Investigação Agrária e Veterinária (INIAV), Institute of Veterinary Research in Tunisia (IRVT)United Nations Secretary-General´s Mechanism for Investigation of Alleged Use of Chemical and Biological Weapons (UNSGM), the WHO CC for Genomics (DTU), The Global Microbial Identifier (GMI)

Project Value	€ 408,858
Duration	2016-2019
Description	Brucmednet project, coordinated by IZSAM (Italy) wants to strengthen capacities to detect, rapidly identify and diagnose Brucellosis, a worldwide spread zoonosis and a special threat for the Mediterranean region. Project aim is to improve brucellosis surveillance, control and eradication in the Mediterranean area developing "easy access" epidemiological tools and diagnostic assays suitable for differentiating infected from vaccinated animals (DIVA strategy). Specific project activities include: • Development of MLVA panels (molecular fingerprint) for B. melitensis and B. abortus and development a freely accessible web-based server for Brucella VNTR data. This will implement molecular tools useful for epidemiological investigations and trace-back of Brucella infection sources in the Mediterranean region and over; • Characterization of B. melitensis surface and sub-surface proteome and immunoreactive epitopes to develop novel serological diagnostic tools for DIVA strategy, to improve brucellosis control and eradication programs, using recombinant antigens; • Enhancement of Laboratory capabilities to detect and identify Brucella strains in project partners Countries (Mediterranean region).

Table 63

Project Title	**Understanding pathogen, livestock, environment interactions involving bluetongue virus (PALE-Blue)**
Partner Country/Region	EC H2020-SFS-2016-2
Implementing Country	United Kingdom (coordinator); France; Italy; Germany; Belgium; Spain; Netherlands; Israel; Sweden; Turkey; Morocco; Kenya; Senegal; Tunisia
Project Value	€6,039,301
Duration	01/06/2017-30/11/2020
Description	New outbreaks caused by bluetongue viruses (BTVs) have emerged in European livestock every year since 1998. These events that have been linked to climate change resulted in massive losses due to fatalities, reduced productivity, reproductive failures, restricted animal movements/trade, and surveillance/vaccination costs. PALE-Blu brings together European institutes with expertise in BTV research and diagnosis, with partners in endemic regions (Africa, the Middle East and Turkey) that act as a 'source' for BTV strains that emerge in Europe. Full-genome sequence-analyses will increase the accuracy of BTV-strain distribution maps, to identify pathways and mechanisms for spread into and within Europe, as

	well as appropriate prevention strategies. PALE-Blu will analyse the genetic connectivity of Culicoides vector populations in different regions, as well as the movements of individual BTV lineages and genes. Together with reverse genetics technologies and infection/replication studies in new Culicoides cell lines, or adults from different Culicoides species, this will elucidate the genetic basis for geographic localisation/movement of BTV strains and serotypes. We will analyse differences in saliva proteins from Culicoides species, their ability to modify the BTV surface proteins (proteases) and effects on efficiency of transmission (in both directions) between vertebrae hosts and insect-vectors. These studies will provide a better understanding of incursion risks for different BTV strains, supporting effective control strategies. PALE-BLU will explore more effective and cross-serotype subunit-vaccines that are DIVA assay compatible and generate a stronger immune response from a single innoculation. We will also explore the potential for use of antiviral agents to induce immediate protection post vaccination. More effective diagnostic systems to better detect mixed infections will also be developed by multiplexing existing or novel diagnostic assay systems.

Table 64

Project Title	**Projects on minimizing risks on public health and dangers arising from biological threats through Crimean-Congo-haemorrhagic fever and rift valley fever in Mauretania, Cameroon and Sierra Leone, the establishment of a laboratory network in Pakistan and strengthening the cooperation with Egypt in terms of biosecurity**
Partner Country/Region	Egypt, Pakistan, and Sub-Saharan Africa (Cameroon, Mauretania, Sierra Leone)
Implementing Country	Germany
Collaborating Institution(s) or Partner(s)	Friedrich-Loeffler-Institute
Project Value	€2,300,000 (2013-2016) €1,500,000 (2017-2019)
Duration	2013-2019
Description	The projects focus on surveillance, diagnostics and good laboratory practice. They include training: seminars and lectures on epidemiology, diagnostic techniques, biosafety and biosecurity for scientists; the collection and examination of samples with new laboratory equipment and the installation of a network of institutes and laboratories in order to strengthen the diagnostic capacities and the sustainability of the projects.

Table 65

Project Title	**Coalition for Epidemic Preparedness Innovations (CEPI)**
Partner Country/Region	Global

Implementing Country	Canada - Global Partnership Program Global Affairs Canada
Collaborating Institution or Partner(s)	Coalition for Epidemic Preparedness Innovations (CEPI)
Project Value	C$4,000,000
Duration	2017-2018
Description	At the G20 Summit in Hamburg in July 2017, Prime Minister Trudeau announced that Canada had joined CEPI and would provide funding and technical expertise to support development of vaccines for 5 priority diseases (MERS CoV, Lassa, Nipah, Marburg and Ebola) that pose serious health and security threats. This contribution will support CEPI's mission to build a new system for the development of safe, effective and affordable vaccines, thereby helping to mitigate threats from outbreaks of emerging infectious diseases.

Table 66

Project Title	**Collaboration with Public Health Agency of Canada to Strengthen Global Biosecurity & Biosafety**
Partner Country/Region	Global
Implementing Country	Canada - Global Partnership Program (GPP) Global Affairs Canada
Collaborating Institution or Partner(s)	Public Health Agency of Canada (PHAC)
Project Value	C$500,000
Duration	2016-2018
Description	This Project will make tangible contributions to strengthening global biosafety and biosecurity by supporting PHAC to: a) enhance collaboration between the International Experts Group on Biosafety and Biosecurity Regulators and countries that require technical support to strengthen their national biosafety and biosecurity policies and capacities, and b) assist countries to establish whole-of-government national biosafety and biosecurity systems.

Table 67

Project Title	**Elimination of a Bioterrorism Threat: Rinderpest Post-Eradication**
Partner Country/Region	Global
Implementing Country	Canada - Global Partnership Program Global Affairs Canada

Collaborating Institution or Partner(s)	World Organisation for Animal Health (OIE)
Project Value	C$4,153,000
Duration	2016-2018
Description	Canada is supporting OIE's efforts to strengthen global health security and contribution to reducing biological threats globally by reducing the risk of an intentional or unintentional release of the rinderpest virus and by increasing the ability and capacity of countries to rapidly control and then re-eradicate an incursion of the disease if it occurs.

Table 68

Project Title	**Global Biological Security Dialogue**
Partner Country/Region	Global
Implementing Country	Canada - Global Partnership Program Global Affairs Canada
Collaborating Institution or Partner(s)	Nuclear Threat Initiative (NTI)
Project Value	US$187,250
Duration	2017-2018
Description	This Project aims to enhance national biosecurity capability in countries by identifying gaps and obstacles to strengthen biosecurity, elicit new biosecurity-relevant commitments, and to build cross-border collaboration to advance achievement of biosecurity-specific targets, consistent with those within the Biosecurity Deliverables of the Global Partnership and Global Health Security Agenda (GHSA) and Joint External Evaluation.

Table 69

Project Title	**OIE Biological Threat Reduction Activities**
Partner Country/Region	Global
Implementing Country	Canada - Global Partnership Program Global Affairs Canada
Collaborating Institution or Partner(s)	World Organisation for Animal Health (OIE)
Project Value	C$2,903,757
Duration	2016-2018
Description	Canada is supporting OIE efforts to mitigate serious biological security threats posed by infectious diseases of animal origin and

	to assist member countries to better prevent, detect and respond to animal disease outbreaks. These activities include establishment of a "Biological Threat Reduction" ad hoc group to develop specific methodologies for veterinary laboratories related to the investigation of suspicious or deliberate biological incidents; assistance to member countries to implement the Performance of Veterinary Services Pathway; support for veterinary laboratory twinning projects to address biosafety and biosecurity concerns for high consequence pathogens of security concern; support for OIE PVS experts to participate in the Global Health Security Agenda (GHSA) Joint External Evaluation process; conduct of regional biological threat reduction seminars for national focal points to the OIE; and convening of the 2nd Global Conference on Biological Threat Reduction "Enhancing Health and Security for All", held in October 2017 in Ottawa, Canada, which brought together more than 350 participants from roughly 100 countries, international organisations (OIE, WHO, INTERPOL, United Nations of Disarmament Affairs) and non-governmental bodies to identify new and innovative ways to mitigate biological threats.

Table 70

Project Title	**Strengthening Global Mechanisms and Capacities for Responding to Deliberate Use of Biological Agents**
Partner Country /Region	Global
Implementing Country	Canada - Global Partnership Program (GPP) Global Affairs Canada
Collaborating Institution or Partner(s)	United Nations Office for Disarmament Affairs (UNODA) Wilton Park World Health Organization (WHO)
Project Value	US$2,850,000
Duration	2017-2018
Description	Canada's GPP is supporting multiple activities to strengthen global mechanisms and capabilities for responding to the use of disease as a weapon, including: support to WHO to strengthen internal readiness to respond to deliberate biological outbreaks and enhance coordination between health and security sectors; collaboration between major international organizations that would have roles in responding to a biological attack (i.e. BTWC ISU, UNODA, WHO, OIE, FAO & INTERPOL) to identify challenges and develop recommendations and an inter-agency cooperation framework for enhanced response preparedness and coordination; and co-sponsorship with the UK and US of a Wilton Park event on Responding to Deliberate Biological Release (Sept 2017).

Table 71

Project Title	**World Health Organisation (WHO) Biological Threat Reduction Programming**
Partner Country/Region	Global
Implementing Country	Canada - Global Partnership Program (GPP) Global Affairs Canada
Collaborating Institution or Partner(s)	World Health Organisation (WHO)
Project Value	C$3,287,803
Duration	2016-2018
Description	Canada's GPP is supporting WHO to address multiple high-priority, high-value biological threat reduction activities, including: strengthening global biological security (biosecurity) and biological safety (biosafety); improving collaboration at the "animal-human interface" to ensure more effective and rapid response to zoonotic disease threats (i.e. disease that originates in animals but can spread to humans) ; and enhancing global early warning and risk monitoring capacities to detect, assess and inform about global biological threats.

Table 72

Project Title	**INTERPOL's Chemical and Biological Terrorism Prevention and Response Initiative**
Partner Country/Region	Global - West Africa, South East Asia and Middle East and North Africa
Implementing Country	Canada - Global Partnership Program (GPP) Global Affairs Canada
Collaborating Institution or Partner(s)	International Criminal Police Organization (INTERPOL)
Project Value	C$4,713,985
Duration	2016-2018
Description	Canada's GPP is supporting activities that will enhance the capabilities of INTERPOL to assist its 190 member countries, particularly those partner countries in the Middle East and North Africa, Southeast Asia, and West and Sub-Saharan Africa to better prevent, prepare for, detect and respond to chemical and biological terrorism threats through a comprehensive package of programming assistance and countermeasures.

Table 73

Project Title	**Bioterrorism Evidence Exploitation Workshop and Operation**
Partner	Indonesia, Iraq, Malaysia, Philippines, Singapore and Thailand

Country/Region	
Implementing Country	Canada - Global Partnership Program Global Affairs Canada
Collaborating Institution or Partner(s)	International Criminal Police Organization (INTERPOL)
Project Value	C$741,967
Duration	2016-2018
Description	To support the Government of Iraq and select countries in Southeast Asia (Malaysia, Philippines, Indonesia, Singapore and Thailand) to better prepare for, detect and respond to bioterrorism threats. This Project is designed to strengthen the capabilities of law enforcement experts to conduct effective responses to biological attacks and mitigate serious threats posed by terrorist groups operating in Iraq and Southeast Asia.

Table 74

Project Title	**CARTA/APHRC**
Partner Country/Region	African Population and Health Research Center (APHRC), Nairobi, Kenya.
Implementing Country	Sweden through the Swedish International Development Cooperation Agency
Project Value	SEK 10,000,000€ 1,027,169
Duration	2017-2021
Description	The major goal of the Consortium for Advanced Research Training in Africa (CARTA) is to build a vibrant African academy that is able to lead world-class multidisciplinary research that makes a positive impact on public and population health. The initiative aims to foster vibrant and viable multidisciplinary research hubs at African universities; create networks of locally-trained internationally-recognized scholars; and enhance the capacity of African universities to lead globally-competitive research and training programs.

Table 75

Project Title	**Biorisk Management Training and Certification in French and Arabic Languages**
Partner Country/Region	Middle East and North Africa
Implementing Country	US - Department of State's Biosecurity Engagement Program
Collaborating Institution(s) or Partner(s)	International Federation of Biosafety Associations
Project Value	US$175,000

Duration	2016-2017
Description	The project leverages existing French and Arabic speaking Biosafety Associations and subject matter experts in the MENA region to develop and deliver the training and IFBA certification program to new audiences in their native languages. The program empowered local Biosafety Associations to independently deliver the certification program in subsequent years on their own once initially trained and accredited by the IFBA as approved exam proctors.

Table 76

Project Title	**Shipping Workshop for Algerian Institutions**
Partner Country/Region	Middle East and North Africa (MENA): Algeria
Implementing Country	US - US Department of State's Biosecurity Engagement Program
Collaborating Institution(s) or Partner(s)	Sandia National Laboratories
Project Value	US$110,000
Duration	2017
Description	The US, in partnership with Algeria, implemented a workshop designed to help facilities develop sustainable shipping programs to reduce the risks associated with shipping infectious substances. Building capacity on this topic was achieved through training personnel at facilities to become certified International Air Transpiration Association (IATA) dangerous goods infectious substance shipping trainers. During the workshop, participants received infectious substance certification training, followed by the administration of an exam to demonstrate understanding of the IATA regulations and competence in the performance of packaging per IATA regulations. Following IATA shipping training, participants completed train-the-trainer instruction to position them to be able to establish comprehensive shipping programs at their facilities and train others within their facility and, additionally, in Algeria, to ship infectious substances according to IATA requirements.

Table 77

Project Title	**MENA Advanced BioRisk Officer Training Program 2.0**
Partner Country/Region	Middle East and North Africa (MENA): Algeria, Egypt, Lebanon, Morocco, and Tunisia
Implementing Country	USA - US Department of State's Biosecurity Engagement Program
Project Value	US$302,000
Collaborating Institution(s) or	Elizabeth R Griffith Foundation

Partner(s)	
Duration	2017
Description	This course consisted of two sets of two-week sessions, one in July 2017 and one in October/November 2017, for a total of 4 weeks of training. The project sought to develop fully competent biorisk management officers that are also biorisk management trainers. The course took 20 new safety officers and provided them training in biorisk management (as defined by the internationally accepted standards CWA 15793:2011, Biorisk Management standard and CWA 16335, Biosafety Officer Competency standard). The course had a heavy focus on biosecurity and emphasis that biological agents can be misused, accidentally or deliberately. The course emphasized methods for biosecurity risk assessment, personal suitability assessments, how to secure dangerous biological agents and how to properly account for and justify their use. In addition, the course gave the students an extensive collection of resources and materials that they could use for reference, use in their own program assessments, and use in their own teaching and trainer development. A number of the course trainers were local, previous graduates from the MENA-ABOT program.

Table 78

Project Title	**MENA Twinning Round V**
Partner Country /Region	Middle East and North Africa - Egypt, Jordan, Mali, Morocco, and Tunisia.
Implementing Country	USA - US Department of State's Biosecurity Engagement Program
Project Value	US$333,000
Collaborating Institution(s) or Partner(s)	Sandia National Laboratories
Duration	2017
Description	The United States implemented a project to bring biorisk management (BRM) professionals from select MENA countries together with experienced, credentialed, and well networked BRM professionals from the United States to work together on Biosafety and Biosecurity projects. The two groups of BRM professionals were paired or "twinned" as partners, with the MENA twins receiving training and support to perform a gap analysis and address a discrete biosafety or biosecurity issue, either at their home institution or in their home country. The "twins" then worked together jointly over a six month period, with the U.S. "twins" offering support and guidance to the MENA "twin". After six months, participants reconvened in Morocco to present their joint project results.

Table 79

Project Title	**CBRN 37.MediLabSecure: Preventing vector-borne diseases around the Mediterranean and Black Sea regions by creating new networks**
Partner Country/Region	Mediterranean and Black Sea non-EU countries, including Albania, Algeria, Armenia, Bosnia and Herzegovina, Egypt, Georgia, Jordan, Kosovo1, Lebanon, Libya, Moldova, Montenegro, Morocco, Palestine2, Serbia, The former Yugoslav Republic of Macedonia, Tunisia, Turkey, Ukraine. 1. This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence. 2. This designation shall not be construed as recognition of a State of Palestine and is without prejudice to the individual positions of the Member States on this issue.
Implementing Country	European Union DEVCO/EuropeAid, France (general and network coordination), Italy, Spain (network coordination).
Project Value	€ 3,300,000
Duration	4 years (January 1st 2014-December,31st 2017)
Description	Project funded by the EU Instrument contributing to Stability and Peace. Countries of the Mediterranean and Black Sea regions have common sea borders and, as a result, share common public health issues and threats. The MediLabSecure project aims at consolidating a Laboratory Network on the emerging viruses that are pathogens for humans and/or animals. It will represent a cluster for awareness, risk assessment, monitoring and control of these vector borne diseases. This cluster will require the interaction of four laboratory sub-networks, one for human health, one for animal health, one for entomology and one for public health reinforcement. The MediLabSecure network will encompass partner countries around the Mediterranean and Black Sea Regions (19 non-EU countries) by means of a collaborative execution of the stated work packages to address public health-related national needs.

Table 80

Project Title	**Biological Risk Management in the Middle East and North Africa (MENA) Region**
Partner Country/Region	MENA - Morocco, Algeria, Egypt, Lebanon, Jordan, Iraq, Turkey and UAE
Implementing Country	Canada - Global Partnership Program Global Affairs Canada
Collaborating Institution or	International Federation of Biosafety Associations (IFBA)

Partner(s)	Tunisian National Biosafety Association
Project Value	C$44,700
Duration	2016-2017
Description	To promote safe, secure and responsible work with biological materials in the Middle East and North Africa. IFBA and the Tunisian National Biosafety Association convened a Biological Risk Management Symposium and follow-on conference in Tunisia in April 2017.

Table 81

Project Title	**International Global Partnership Initiated Academia for the Control of Health Threats (GIBACHT): Training of scientists from Africa and Asia for the prevention of highly dangerous diseases**
Partner Country/Region	Several countries in Asia and Africa
Implementing Country	Germany
Collaborating Institution(s) or Partner(s)	Bernhard Nocht Institute for Tropical Medicine Robert Koch institute
Project Value	€1,160,000 (2013-2016) €1,340,000 (2017-2019)
Duration	2013-2019
Description	GIBACHT is an educational programme established and supported by the German Federal Foreign Office. The training programme focuses on threats and risks conferred by biological agents and bioweapons and their successful prevention and control. The objectives of the programme are: • To provide basic understanding and training in control of infectious diseases and the management of biohazards • To intensify and sustain international co-operation in the fields of biosafety, biosecurity and the prevention and management of epidemics • To strengthen national and local centres for infectious disease epidemiology and management, biosafety and biosecurity.

Table 82

Project Title	**Global Alliance for Vaccines and Immunisation (GAVI)**
Partner Country/Region	
Implementing Country	Sweden through the Ministry for Foreign Affairs

Project Title	**Global Alliance for Vaccines and Immunisation (GAVI)**
Project Value	SEK 300,000,000/€ 30,815,058
Duration	2016-2020
Description	Gavi is an international organisation with an aim to improve access to new and underused vaccines for children living in the world's poorest countries. Gavi brings together public and private sectors with the shared goal of creating equal access to vaccines for children, wherever they live.

Table 83

Project Title	**International Centre of Insect Physiology and Ecology (icipe), Nairobi, Kenya.**
Partner Country/Region	
Implementing Country	Sweden through the Swedish International Development Cooperation Agency
Project Value	SEK 5,000,000/€ 513,584
Duration	2016-2021
Description	icipe's mission is to help alleviate poverty, ensure food security and improve the overall health status of peoples of the tropics, by developing and extending management tools and strategies for harmful and useful arthropods, while preserving the natural resource base through research and capacity building. The Centre's vision is to pioneer global science in entomology, to improve the well-being and resilience of people and the environment to the challenges of a changing world, through innovative and applied research, alongside deep exploratory study, impact assessment, evaluation and sustainable capacity building. Some insects are disease vectors and are responsible for the transmission of dilapidating human and livestock diseases, exacerbating Africa's already disproportionate share of the global disease burden. Such diseases include malaria (transmitted by mosquitoes), human and animal trypanosomosis, commonly known as sleeping sickness and nagana respectively, which are transmitted by tsetse. Other vector-borne diseases are: dengue, kala-azar, Rift Valley fever and yellow fever.

Table 84

Project Title	**International Vaccine Institute**
Partner Country/Region	
Implementing Country	Sweden through the Swedish International Development Cooperation Agency

Project Title	**International Vaccine Institute**
Project Value	SEK 7,000,000/€ 719,018
Duration	2015-2019
Description	The International Vaccine Institute (IVI) is a not-for-profit International Organization established in 1997 as an initiative by the United Nations Development Programme (UNDP). IVI is among the few organizations in the world dedicated to vaccines and vaccination for global health. IVI focuses on vaccines against infectious diseases of the most impoverished. IVI aims to make vaccines available and accessible for vulnerable populations in developing countries.

Table 85

Project Title	**The Global Fund to Fight Aids, Tuberculosis and Malaria (GFATM)**
Partner Country/Region	
Implementing Country	Sweden through the Ministry for Foreign Affairs
Project Value	SEK 800,000,000/€ 82,173,489
Duration	2017-2019
Description	The Global Fund is a 21st-century partnership organization designed to accelerate the end of AIDS, tuberculosis and malaria as epidemics. The Global Fund is a partnership between governments, civil society, the private sector and people affected by the diseases. The Global Fund raises and invests nearly US$4 billion a year to support programs run by local experts in countries and communities most in need.

Table 86

Project Title	**The International Centre for Diarrhoeal Disease Research, Bangladesh (ICCDR,B)**
Partner Country/Region	
Implementing Country	Sweden through the Swedish International Development Cooperation Agency
Project Value	SEK 5,000,000/€ 513,584
Duration	2016-2021
Description	The International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b) is an international health research institution located in Dhaka, dedicated to addressing the health challenges that disproportionately affect people living in poverty in Bangladesh and other low- and middle-income countries. icddr,b has the capacity to undertake a full spectrum of research spanning population-based studies and demographic surveillance, large-

Project Title	**The International Centre for Diarrhoeal Disease Research, Bangladesh (ICCDR,B)**
	scale clinical trials, hospital-based clinical studies, and laboratory research

Table 87

Project Title	**The network ReAct**
Partner Country/Region	
Implementing Country	Sweden through the Swedish International Development Cooperation Agency
Project Value	SEK 5,000,000/€ 513,584
Duration	2015-2019
Description	ReAct is one of the first international independent networks to articulate the complex nature of antibiotic resistance and its drivers. ReAct was initiated with the goal to be a global catalyst, advocating and stimulating for global engagement on antibiotic resistance by collaborating with a broad range of organisations, individuals and stakeholders.

Table 88

Project Title	**The UNICEF-UNDP-World Bank-WHO Special Programme for Research and Training in Tropical Diseases (TDR)**
Partner Country/Region	
Implementing Country	Sweden through the Swedish International Development Cooperation Agency
Project Value	SEK 33,800,000/€ 3,471,830
Duration	2016-2018
Description	TDR is a global programme of scientific collaboration that helps facilitate, support and influence efforts to combat diseases of poverty. TDR has supported research on improved prevention of Dengue and Chaga's disease through measures targeting the insects that spreads these diseases.

Meeting of the States Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction

5 December 2017

English only

2017 Meeting
Geneva, 4-8 December 2017
Item 6 of the provisional agenda
Issues of substance and process for the period before the next Review Conference, with a view to reaching consensus on an intersessional process

The European Union's continued support for strengthening the Biological and Toxin Weapons Convention

Submitted by the European Union

I. Introduction

1. In line with its position set out in Council Decision 2015/2096/CFSP (circulated on 12 April 2016 as working paper under reference BWC/CONF.VIII/WP.5), the European Union (EU) engaged proactively and constructively in the preparatory process leading up to and during the Eighth Review Conference of the Biological and Toxin Weapons Convention (BTWC) held in November 2016 in Geneva with a view to building consensus for a successful outcome of the Conference.

2. In this respect, the Union supported, inter alia, a new substantive work programme during the period between the Eighth and Ninth Review Conferences with a view to strengthening the effectiveness of the Convention.

3. The European Union has in particular promoted the following topics for a new intersessional programme:

- national implementation and compliance;
- further work on Confidence-Building Measures (CBMs) following the Eighth Review Conference;
- assistance and cooperation under Article VII of the Convention;
- developments in science and technology;
- review of the Consultative Committee procedure;
- universalisation.

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II. European Union's BTWC assistance programme: state of play (February 2016 – November 2017)

4. Despite the lack of agreement at the Eighth Review Conference on intersessional work programme the European Union continued its strong political and financial support for the Convention, including through the consistent and comprehensive implementation by the BTWC Implementation Support Unit of the EU's fourth assistance programme laid down in Council Decision 2016/51/CFSP. An overall budget of 2, 340 million EUR has been made available to this end.

5. The activities that have been organised by the BTWC Implementation Support Unit within the framework of Council Decision 2016/51/CFSP since its adoption on 18 January 2016 are outlined below.

Project 1: Support for BTWC universalisation

Purpose

To promote universal adherence to the BTWC by encouraging States not party to better understand the benefits of joining the Convention and getting more involved in its meetings and other activities.

Implemented activities

Regional workshop on BTWC universalisation for the Pacific region (Nadi, Fiji, 27-28 July 2017)

With five States in the Pacific region not yet party to the BTWC (Kiribati, Micronesia, Niue, Samoa and Tuvalu), the main objective of the regional workshop was to raise awareness of the Convention in the region and to promote the efforts of these States towards accession. Around 40 participants from across the region attended the workshop. Since the workshop, on 21 September 2017, Samoa deposited its instrument of accession to the Convention.

A full workshop report is available at

https://www.unog.ch/80256EDD006B8954/(httpAssets)/8645248E8B8A7C8680C1258167C0053AC46/$file/Fiji+seminar+-+Summary+Report.pdf

Planned activities

A number of further universalisation activities will be conducted on bilateral and regional basis in 2018, in particular in Africa.

Project 2: Interaction with non-governmental stakeholders on science and technology

Purpose

To enhance the interaction between the BTWC process and non-governmental stakeholders, such as the scientific community and industry, through the organisation of regional workshops on scientific and technological issues and on biosafety and biosecurity. This project would furthermore directly engage scientists and biosafety professionals in developing countries in order to raise awareness of the Convention, to develop capacities for more effective implementation and to facilitate international cooperation for peaceful purposes.

Implemented activities

Regional workshop for Eastern Europe and Central Asia (Kyiv, Ukraine, 21-22 September 2017)

Around 50 national and international experts from 10 BTWC States Parties (Belarus, Bosnia and Herzegovina, Croatia, Georgia, Kyrgyzstan, the former Yugoslav Republic of Macedonia, Tajikistan, Ukraine, Uzbekistan, United States of America) as well as from international and regional organisations such as the Organisation for Security and Cooperation in Europe (OSCE), the Science and Technology Centre Ukraine (STCU), the International Science and Technology Centre (ISTC), Regional Secretariats (Central Asia, South Eastern and Eastern Europe) of the EU CBRN Centres of Excellence, UNODA Geneva Branch, and the European External Action Service).

Planned activities

Subsequent regional workshops are scheduled to take place in 2018 in Jordan (for the Middle East), Mexico (for Latin America), Republic of South Africa (for Africa) as well as in Asia (location to be confirmed).

Project 3: Capacity development for BTWC implementation

Purpose

The Seventh Review Conference reaffirmed that the enactment and implementation of necessary national measures would strengthen the effectiveness of the BTWC. The Conference called upon States Parties to adopt legislative, administrative, judicial and other measures, including awareness-raising and codes of conduct, designed to enhance domestic implementation of the Convention and to ensure the safety and security of microbial or other biological agents or toxins. Based on experiences gained through previous EU assistance programmes (namely Joint Action 2008/858/CFSP and Council Decision 2012/421/CFSP), extended national BTWC implementation assistance programmes will be provided.

Implemented activities

EU Workshop in support of the BTWC extended assistance programmes (Geneva, 29 March 2017)

The workshop brought together over 40 participants, including experts nominated by EU Member States and representatives of international organisations and non-governmental organisations, including from Interpol, the International Federation of Biosafety Associations (IFBA), the Organisation for the Prohibition of Chemical Weapons (OPCW), Parliamentarians for Global Action (PGA), the Verification Research, Training and Information Centre (VERTIC), the United Nations Interregional Crime and Justice Research Institute (UNICRI), the World Health Organisation (WHO), the World Organisation for Animal Health (OIE), the EU European External Action Service and European Commission.

The workshop aimed at discussing best practices in preparation for the extended assistance programmes and lessons learned in the delivery of assistance, in order to enable the experts to effectively support national implementation of the Convention by beneficiary States Parties.

A full workshop report is available at

https://www.unog.ch/80256EDD006B8954/(httpAssets)/BA3F8DB2E27E2BA0C125811E00317AF6/$file/2017-03-29_REPORT+of+Workshop+in+Support+of+the+BWC+Extended+Assistance+Programmes.pdf

Assistance programmes

After the launch of the application process, the Implementation Support Unit received applications from 30 BTWC States Parties. A rigorous evaluation process saw these 30 whittled down to 10 States Parties: Cameroon, Colombia, Cote d'Ivoire, Iraq, Lebanon, Malawi, Malaysia, Nepal, Sierra Leone and Yemen.

Each programme will run for approximately 12 months and will comprise:

- kick-off national workshop to make an initial assessment of needs and priorities
- development of a structured Action Plan, tailored for the beneficiary country, and its execution with assistance by international experts (e.g. drafting of legislation, bio-safety/bio-security training, dual use export control, CBMs preparation and submission, awareness-raising for scientists, emergency response planning, etc.)
- wrap-up workshop following the conclusion of the activities

Project 4: Support for the intersessional programme and preparations for the Eighth Review Conference (completed)

Purpose

To help mobilise BTWC States Parties for active participation in the Eighth Review Conference through organising regional workshops and offering opportunities to reflect on and discuss key topics of the 2012-2015 inter-sessional programme. It also includes practical support for topics which have been discussed during the intersessional programme, such as the concept of a peer review mechanism.

Implemented activities

Regional workshop for Eastern Europe and Central Asia (Astana, Kazakhstan, 15-16 June 2016)

The workshop was attended by 51 persons representing 9 regional States Parties (Afghanistan, Belarus, Georgia, Kazakhstan, Moldova, Russian Federation, Serbia, Ukraine, Uzbekistan), one observer State Party (United States of America), 6 EU MS (Belgium, Bulgaria, Hungary, Romania, Sweden, United Kingdom) as well as international organisations and academic institutions such as UN Interregional Crime and Justice Research Institute (UNICRI), UN Office for Disarmament Affairs (UNODA), EU CBRN Centres of Excellence, European External Action Service, University of Bradford (United Kingdom), and University of Sussex (United Kingdom).

Full report is available at

https://www.unog.ch/80256EDD006B8954/(httpAssets)/88B4678D2E65F3EFC12580B10058DFE8/$file/20161101+Kazakhstan+Regional+seminar+-+Summary+Report.pdf

Regional workshop for Latin America (Brasília, Brazil, 22-23 August 2016)

The workshop was attended by 61 persons representing 14 regional States Parties (Argentina, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Mexico, Panama, Paraguay, Peru, and Venezuela), one observer State Party (Russian Federation), 5 EU MS (Belgium, France, Hungary, Slovenia, Spain) as well as international organisations and academic institutions such as UN Office for Disarmament Affairs (UNODA), UN Development Programme (UNDP), European External Action Service, and Academy of Sciences of Cuba.

Full report is available at

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80B100595660/$file/20161031+Brasilia+Regional+seminar+-
+Summary+Report.pdf

Regional workshop for South and South-East Asia (New Delhi, India, 29-30 August 2016)

The workshop was attended by 60 persons representing 12 regional States Parties (Bangladesh, Bhutan, Cambodia, China, India, Iran, Lao Democratic Peoples Republic, Malaysia, Nepal, Sri Lanka, Thailand, Vietnam), 4 observer States Parties (Brazil, Japan, Russian Federation, United States of America), 4 EU MS (Belgium, France, Hungary, Sweden) as well as international organisations and academic institutions such as UN Office for Disarmament Affairs (UNODA), European External Action Service, Biosafety and Biosecurity Association (Philippines), and University of Sussex (United Kingdom).

Full report is available at

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+Summary+Report.pdf

Regional workshop for Africa (African Union, Addis Ababa, Ethiopia, 13-14 September 2016)

The workshop was attended by 44 persons representing 18 regional States Parties (Algeria, Angola, Burundi, Cameroon, Côte d'Ivoire, Ethiopia, Guinea, Kenya, Lesotho, Madagascar, Malawi, Somalia, South Africa, Sudan, Togo, Uganda, Zambia, Zimbabwe), 2 observer States Parties (Russian Federation, United States of America), 2 EU MS (Hungary, United Kingdom) as well as international organisations and academic institutions such as African Union Commission (AUC), UN Regional Centre for Peace and Disarmament in Africa (UNREC), UN Office for Disarmament Affairs (UNODA), EU CBRN Centres of Excellence, European External Action Service, Biorisk Management Association (Kenya), Institute for Security Studies (South Africa), and University of Sussex (United Kingdom).

Full report is available at

https://www.unog.ch/80256EDD006B8954/(httpAssets)/AA5EE2CCF004762FC12
580B10059A013/$file/20161031+Addis+Ababa+Regional+seminar+-
+Summary+Report.pdf

Sponsorship programme

Funding under this EU Council Decision was used to support participation by national experts from developing countries in the second meeting of the Preparatory Committee in August 2016, as well as in the Review Conference itself in November 2016. Experts from the following States Parties were supported: Afghanistan,

Armenia, Belarus, Burkina Faso, Bhutan, Cameroon, Colombia, Cuba, Democratic Republic of Congo, Georgia, Ghana, Honduras, Iraq, Jordan, Kenya, Lao Democratic Peoples Republic, Lebanon, Mali, Malawi, Mongolia, Montenegro, Nepal, Peru, Philippines, Republic of Moldova, Serbia, Sudan, Thailand, Togo, Uganda, Ukraine, Uzbekistan, Zambia, and Zimbabwe. Australia, Canada, Finland, Ireland, the Netherlands and Switzerland also contributed to the sponsorship programme.

Peer review exercise

Morocco hosted a BTWC peer review exercise on 9-11 may 2017. The exercise was attended by 45 national representatives, 16 international experts from 10 BTWC States Parties (Belgium, China, France, Gabon, Germany, Netherlands, Saudi Arabia, Spain, United Arab Emirates, United States of America) and the BTWC Implementation Support Unit.

The exercise aimed at strengthening national implementation of the Convention, improving confidence in compliance by increased transparency, and deepening international cooperation. It built upon the three previous peer reviews conducted in France (2013), the BENELUX countries (2015) and Germany (2016).

Project 5: Support to the UN Secretary General's Mechanism

Purpose

Support strengthening the preparedness of the UN Secretary-General's Mechanism for Investigation of Alleged Use of Chemical, Biological and Toxin Weapons (SGM).

Activities (managed by the UNODA WMD Branch in New York)

- one basic and one specialised training course offered to experts nominated to the SGM Roster
- meeting of SGM stakeholders as an inter- and intra-organisational mechanism for cooperation
- two cross-organisational training events to be co-organised (with the OPCW) to better coordinate existing resources and best practices and avoid overlapping efforts

Project 6: Enabling tools for awareness-raising, education and engagement

Purpose

To produce concrete and practical tools, materials and approaches to enable the activities described in the projects above. Such tools will be produced in formats appropriate to their audiences, including printed versions, and will, in general, require translation to all official languages of the United Nations. To promote the use of the tools which were produced during the former EU-actions: the CBM-guide and the national implementation guide.

Activities

The implementation Support Unit has produced an introductory guide to the BTWC which is used at workshops and other meetings to raise awareness of the Convention and its obligations. An electronic version is available at

https://www.unog.ch/80256EDD006B8954/(httpAssets)/6D16C7B1933F0937C125815D00349763/$file/BWS+brochure.pdf

Work is currently ongoing to finalise an electronic platform for the submission of annual CBM reports, a project which was started under an earlier EU Joint Action in support of the BTWC. An updated version of the CBM Guide and a National Implementation Guide will also be produced and translated into other UN languages.

III. BTWC Meeting of States Parties (4-8 December 2017)

6. The implementation of Council Decision 2016/51/CFSP testifies to the firm EU commitment to the strengthening of the BTWC despite the disappointing outcome of the 2016 Review Conference and the lack of agreement on, inter alia, dedicated intersessional programme underpinning the Convention's implementation and universalisation.

7. However, assistance provided through voluntary contributions, including EU Council Decisions should be seen as important activities that help strengthen the Convention but are not intended as a substitute for formal meetings within the BTWC proper framework.

8. The European Union and its Member States are therefore actively and constructively engaged in the ongoing discussions with a view to preparing in the best possible way the Meeting of States Parties in December 2017.

9. In accordance with the aforementioned EU position and activities, the European Union firmly supports the fulfilment of the MSP's mandate as laid down in the Final Document of the Eighth Review Conference, including 'reaching consensus on an intersessional process' and adopting decision on a work programme during the period until the Ninth Review Conference.

10. In this respect, the paper put forward by United Kingdom, United States of America and Russian Federation "BTWC 2017 Meeting of States Parties: Elements of a Possible Outcome" represents a good basis for reaching a consensus on a draft Decision and the growing broad-based support for the paper is welcome.

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Implementation of Articles IV and X of the Biological Weapons Convention

Submitted by the Republic of Korea

1. Since the ratification of the Biological Weapons Convention (BWC) in 1987, the Republic of Korea (ROK) has been committed to fulfilling all of its obligations under the BWC and attaches particular importance to the issue of national implementation of Article IV and cooperation and assistance of Article X of the Convention.

Article IV: National Implementation

2. The ROK remains of the view that each State Party's robust implementation of the obligations under the Convention is of vital importance in ensuring the effectiveness of the treaty.

3. In order to effectively prohibit and prevent the development of any type of biological weapons and to control the manufacture of biological agents or toxins that can be used as biological weapons, the ROK's Ministry of Trade, Industry and Energy (MOTIE) fully revised the *Chemical Weapons Prohibition Act of 2006* into the *Act on the Prohibition of Chemical and Biological Weapons and the Control of the Production, Export, and Import of Specific Chemicals and Biological Agents* (CBWPA).

4. The CBWPA was revised and expanded to provide a comprehensive set of rules and regulations on the prohibition and control of biological agents that had been previously scattered among various Acts, such as *the Infectious Disease Control and Prevention Act*, *the Act on the Prevention of Contagious Animal Diseases*, and *the Plant Protection Act*.

(a) There are 67 kinds of biological agents and toxins listed in the CBWPA that may be used only for peaceful purposes, such as the prevention and treatment of diseases. The Act contains provisions for declaration and authorization of any

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possession, production, export or import; and for inspections of facilities producing and possessing the listed biological agents and toxins.

(b) In addition, the CBWPA requires the export of biological agents and toxins to abide by the *Public Notice of Exportation and Importation of Strategic Items* in accordance with the *Foreign Trade Act*.

5. The Ministry of National Defense (MND) revised the *Biological Weapons Prohibition Directive* to facilitate the implementation of the BWC in the military, and it has been in force since May 2008. In accordance with the Directive, MND designated Korea Arms Verification Agency (KAVA) as the implementation organization for the MND's biological safety tests and appointed experts in the field of biology as verification members to conduct yearly inspections on biological research facilities within the military.

6. During the regular inspections, the following are monitored: safety of the biological research facilities, as well as the maintenance and management of various documents. The status of implementation of the BWC is verified on site. After reviewing any possible improvements, the MND monitors whether appropriate measures are being taken. The MND is confirming and managing the implementation of the BWC within the military through such safety inspection system and is maintaining the ... ost biosafety management.

7. With recent dramatic developments in the field of biotechnology, the respective roles of government agencies, the industry, and academia have been highlighted in the national implementation of the BWC. The Korean government has established a framework for close cooperation between government agencies and non-government organizations, with a focus on reinforcement of the national implementation of the BWC, including effective and efficient application of the CBWPA.

8. In line with the advancements in biotechnology, MOTIE has been working with the Korea Biotechnology Industry Organization (KoreaBIO), a non-government organization established for the purpose of promoting technology development and commercialization in the biotechnology industry, in the following three areas:

(a) Policymaking: The Korean BWC implementation committee consists of experts from the government, the industry, and academia. This committee is highly active in providing advice and opinions on government policies on national implementation of the BWC.

(b) Education: Workshops are held to improve biosafety and biosecurity levels and prevent misuse of biotechnology. In addition, there are on-site education programs that involvevisiting facilities where biological agents and toxins are processed.

(c) Awareness-raising: In order to raise awareness of the BWC and the CBWPA in the biotechnology industry and academic community, seminars and other events have been held, and a website has been developed. In addition, brochures and periodicals have been published to disseminate information on the CBWPA.

9. KoreaBIO is an important link between the government and non-government sectors to encourage the industry and academic community to actively implement the BWC. Such active participation of the industry and academia is one of the most effective ways to ensure faithful national implementation, and it will promote scientific and technological developments in the relevant fields.

Article X: International Cooperation

10. The ROK believes that international cooperation is critical in supporting national implementation, which Article X of the BWC acknowledges.

11. The Korea Centers for Disease Control and Prevention (KCDC) is making great effort to develop various capabilities, such as detection, evaluation, reporting and response, to prepare for a potential public health crisis.

12. In 2017, instead of the usual self-evaluation, a WHO-International Health Regulations (IHR) (2005) Joint External Evaluation (JEE) was conducted with participation of the WHO, Japan, the United Kingdom, the United States, China, Canada, Finland, Singapore, Australia, Thailand and other countries. The ROK was evaluated on a total of 19 criteria, including biological security and safety, preparedness and response in case of public health emergencies, domestic laws and acts on transporting and reporting high-risk pathogens, bioterrorism response plan and corresponding Laboratory Response Network. The JEE was a milestone for the ROK in recognizing the constant progress made by the ROK on its capabilities regarding infectious diseases and bioterrorism.

13. In addition, the ROK has participated in various activities against bioterrorism, such as ROK-US Military table top exercise (Adaptive Shield) and in the International Laboratory Response Network of Biological Threats.

14. The ROK hosted the UNSCR 1540 Industrial Outreach Conference (Wiesbaden Conference) in 2016, which was supported by the UN Office for Disarmament Affairs (UNODA) and the Government of Germany. The Conference raised awareness of the industry regarding full implementation of UNSCR 1540 in the Asia-Pacific region, promoted better understanding of export control and border control regulations of major exporters and importers in Asia, and strengthened regional implementation of UNSCR 1540.

15. In the Wiesbaden Conference, various issues were raised, including the necessity for the simplification of the ROK's legislation and regulation, communication between the public and private sectors, and adequate compensation schemes. The Korean government showcased a range of programs for effective communication such as Yestrade, an elective ICP exporter system, and "Home Doctor" services. The 1540 committee proposed to Member States the establishmen t of legally binding compliance standards and suggested Member States to conduct with one another. The participants of the Conference shared challenges in export controls, including the difficulty on continued training of their export controls officers, frequent changes in the relevant laws, and mutual trust.

16. The ROK places great importance on preventing biological threats. Since 2005, the ROK has participated in the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction (GP) to contribute proactively to the efforts to prevent terrorists or states that sponsor terrorism from acquiring or developing weapons of mass destruction and related materials, equipment and technology.

17. The ROK has also actively participated in the Global Health Security Agenda (GHSA). The ROK not only hosted the 2015 GHSA High-Level Meeting in Seoul but also played a leading role in organizing five Steering Group Meetings in 2017.

18. The ROK remains committed to fulfilling its obligation under the BWC and is ready to share its experience and practices in the field of national implementation and international cooperation with other States Parties and the private sector to strengthen the Convention.

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Responding to deliberate biological release: the requirements for effective, coordinated international action

Submitted by Canada, the United Kingdom of Great Britain and Northern Ireland and the United States of America

I. Introduction

1. In recent years the BTWC's Article VII has attracted renewed attention by Biological and Toxin Weapons Convention (BTWC) States Parties. This is due in part to the:

(a) repeated use of chemical weapons in Syria, which underscored the complexity of staging an effective international response;

(b) critical importance of advance preparedness;

(c) increasing threat of emerging and re-emerging infectious disease (exemplified by the Ebola outbreak in West Africa);

(d) continued prospect of disease being used as a biological weapon by certain states or terrorist groups; and,

(e) awareness of how ill prepared the world is for a large scale pandemic.

States Parties have submitted several Working Papers on this issue in the 2014 and 2015 Meetings of Experts and the States Parties.

2. At the international organisation (IO) level, no agency has been designated as the lead authority on issues related to deliberate biological releases. The map of all stakeholders potentially involved in preparedness and response to a deliberate bio-event is extremely crowded, and roles and responsibilities are poorly defined. While the BTWC has a theoretical role in providing assistance (via Article VII) and investigating (via Article VI)

following a deliberate biological event, in practice, it lacks the functional capacities to effectively coordinate a response with the pertinent agencies and IOs.

3. Putting the provisions of Article VII into practice in the event of a deliberate release of a biological agent will, of necessity, involve many different government, inter-government and non-government entities working in close collaboration. For this to happen, there are many practical, legal and other complex logistical and operational challenges that will have to be overcome. We have no platform where information and/or recommendations for preparedness and response best practices have been integrated.

4. Studies conducted after the 2014–15 Ebola outbreak strongly indicate that this collaboration will be significantly more complex and challenging than has hitherto been realised.[1] Although the Eighth Review Conference of the BTWC discussed the issue, States Parties failed to agree a course of action to address it. Nonetheless, the Conference stated that "*capabilities to detect, quickly and effectively respond to, and recover from, the alleged use of a biological or toxin weapon need to be in place before they are required*", and stressed a requirement for building on the work already conducted through the intersessional process.[2] This is also a priority for the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction (GP)'s Biological Security Working Group and the Global Health Security Agenda Action Package Respond 2 — Linking Public Health with Law and Multi-sectoral Rapid Response.

5. A conference, sponsored by Global Affairs Canada's Global Partnership Program and the Center for Global Health Science and Security, Georgetown University, Washington DC was hosted by Wilton Park in the United Kingdom in September 2017.[3] This Conference had two main objectives: first it sought to identify how governmental, inter-governmental and non-governmental entities can prepare and effectively implement collaborative action in the event of the use of biological weapons, whether by states or non-state actors, in order to ensure an effective response that contains the outbreak promptly and promotes a quick recovery. And second, the Conference aimed to support the BTWC, GP and GHSA processes by developing tangible, action-oriented recommendations for how coordination of international response can be made more effective. This Working Paper summarises the main results.

6. The Conference looked in detail at three areas to see what specific actions could be identified for taking forward in the near and longer term. These areas were:

(a) Equipment, logistics and operations;

(b) Laboratories, diagnostics and science;

(c) Command and control and coordination.

7. A summary of the key points that emerged during the discussions on these themes follows.

[1] Many lessons learned reports have been written on the outbreak — see Tom Koch, Ebola in West Africa – Lessons we may have learned, International Journal of Epidemiology, Volume 45, Issue 1, 1 February 2016, pages 5–12 for a summary of some of them. A search on Google using the words "2013-2014 Ebola outbreak lessons learned" generated 97,000 hits.

[2] BWC/CONF.VIII/4, Final Document of the Eighth Review Conference, 11 January 2017, paragraph 58 of the Final Declaration noted, "the need for a procedure for assistance by which timely emergency assistance can be provided, including to better identify accessible information on the types of assistance that might be available in order to ensure prompt response and timely emergency and humanitarian assistance by States Parties, if requested in the event of use of biological weapons."

[3] This was a follow-up to a Wilton Park Conference held in 2016, "The 2014-2015 Ebola outbreak: lessons for response to a deliberate event".

Equipment, logistics and operations

- A roster of experts composed of personnel from responsible agencies and other relevant actors, and involving the health, security, law enforcement and humanitarian sectors, ought to be created and meet regularly to address the issues identified in this Working Paper.
- When a biological event occurs, a rapid initial assessment is needed of the situation on the ground in order to determine the nature and extent of the incident and the requirement of a response; this could be provided by first responders already on the ground or an advance Article VII reconnaissance team. In terms of specifying what assistance might be needed the South African template first proposed and then updated in the BTWC intersessional meetings and at the Eighth Review Conference should be adopted.[3]
- Mapping the current potential actual response capabilities in States Parties and in international or non-governmental organizations is a challenging task; an initial attempt to list these is needed.
- There are problems associated with the maintenance of pre-positioned stockpiles of equipment and medical countermeasures — ensuring that items are not time expired requires careful monitoring of inventories. Sorting out transport and distribution create further challenges. Contracts/undertakings for equipment and assistance could be placed with potential suppliers identified in advance. Other key questions are: "Who will guarantee expedited clearance through customs? Who will provide security at the airport, during transit or storage? How will medical countermeasures be moved to the site of the outbreak? Who will move them? How will they be distributed and monitored?"
- Guidance is needed to ensure that a UN Secretary-General's Mechanism (UNSGM) investigation of alleged use and an Article VII assistance mission, which may be running in parallel at some stage or throughout either activity, do not hamper the other's work. Such guidance might focus on ensuring effective information sharing and sustaining complementarity without compromising either operation.
- We need to assess what impact declaring an outbreak to be the result of deliberate release might have on assistance providers — will they leave immediately? How might it affect assistance operations on the ground for those that remain? How might insurance cover affect the decisions of assistance providers? A data base questionnaire for assistance providers to infectious disease outbreaks should contain a clear question on whether assistance will still be provided in the event of deliberate release or if an outbreak if subsequently declared to be deliberate.
- There could be value in drafting a simple mapping guide of the sorts of decisions and actions that would need to be taken and followed in the event of a deliberate release; such a guide could be provided to senior government figures such as Prime Ministers and Health Ministers.
- Assistance measures could usefully be defined to include inter alia: detection equipment, including biosensors, alarm equipment, protective equipment, decontamination equipment and decontaminants, diagnostics, prophylactic and therapeutic medical countermeasures, materials and associated equipment, and exchange of information and technology regarding assistance.

[3] See BWC/CONF.VIII/WP.14, Implementation of Article VII, Submitted by South Africa, 19 November 2017 – paragraph 11.

- The lack of Standard Operating Procedures (SOPs) that depict how best international humanitarian and law enforcement agencies may interact with each other, or how and what type of information may be shared creates further challenges for the smooth and conflict-free development of international response efforts.

Laboratories, diagnostics and science

- It is not clear what needs to be done to address intellectual property issues with genetic sequences obtained from biomedical samples. Who owns these? And what would happen if an event is declared to be the result of a deliberate release — how would this affect a UNSGM IAI?
- Provision of medical countermeasures and good clinical management is context specific and there are clear gaps here in that medical countermeasures are not available for many biological threat agents — who would address the gaps? There would be a need to share national stockpiles, but this may not be easy as states may want to look to the protection of their own populations first.
- How do we deal with medical intelligence acquired during a response to an outbreak? We do not need or require full chains of custody for every biomedical sample as this would interfere with the prompt provision of medical care.
- Whereas a forensic diagnostic capability is not necessary to support a humanitarian response, it would still be important for first responders to be aware of the importance of maintaining potential evidence in the event that an outbreak is subsequently suspected or identified as a deliberate release.
- There is perhaps a role for the UNSGM's expert consultants to help address some of the issues raised under the Laboratories, diagnostics and science heading.
- The WHO's Emerging and Dangerous Pathogens Laboratory Network and its Emerging Disease Clinical Assessment and Response Network are examples of existing capabilities and programmes that are relevant for building an effective response to the deliberate use of biological agents.

Command and control and coordination

- New mathematical models have shown that there could be over 22 million possible outbreak scenarios, all of which are considerably diverse in nature and highly contingent on circumstances. There is little doubt that infectious diseases are highly variable, and that even when dealing with a naturally occurring outbreak, no response and coordination efforts would ever be exactly replicated. Context and type of agents are highly influential on the characteristics of the outbreak, and thus the characteristics of response.
- There is no need to re-invent concepts and approaches as key principles and doctrines already exist in national response plans for natural disease outbreaks and are directly relevant for guiding an effective international response to a deliberate release of a biological agent. The way a major incident is addressed through how one best organises a response to contain and mitigate the effects is likely to be the same. The WHO's Emergency Response Framework 2 and 21 Days Pocket Guide for Acute Emergencies is an example of relevant guidance available at the level of international organizations.
- Coordination amongst IOs could be rendered very complex following a deliberate act, and the United Nations (UN) system would have very little capacity overall to respond to a natural outbreak in a non-permissive environment or to a deliberate outbreak. A coordinating body is essential and should be established with

representatives from all relevant agencies involved in the response — an international operations centre would be needed to collect information and coordinate the response on the ground — a baseline assessment of the situation on the ground is needed promptly. (See also first and second bullet in the section on equipment, logistics and operations.

- A glossary of terms could be useful as there is no universal understanding of what key concepts and phrases mean — for example, there are differing interpretations of what an 'investigation' means: it can vary from event to event, which will have implications for its conduct and how it is perceived — is it about establishing facts and/or determining responsibility? Is it about examining the epidemiological and clinical aspects of an outbreak or establishing if biological weapons have been used?

- Cooperation and coordination between humanitarian or medical response actors and those involved in the criminal aspects of the investigations might pose serious practical challenges and trade-offs that require careful examination. Agencies and organizations with humanitarian mandates have access to medical, epidemiological, and other patient data that would undoubtedly be useful to a criminal investigation in the case of a deliberate event. However, such information sharing could jeopardize confidence and trust in those organisations' neutral mandates, as well as their confidentiality obligations. If NGOs and other humanitarian aid oriented agencies, like the World Health Organization (WHO), appear to be working alongside law enforcement or security teams, their access to affected populations may be impacted negatively, which would hinder the effectiveness of the response efforts.

II. Conclusions

8. There are six main areas relevant to the shaping of an effective response to deliberate biological release: preparedness, detection, reporting, response, recovery and governance. There is much to do in both the short and long term in each of these areas. Exactly how we go about operationalizing Article VII is a continuing challenge. Mapping capabilities and capacities relevant for ensuring an effective response to a deliberate release of a biological agent is a priority action.

9. Many capabilities, capacities and programmes are already in place. We are not starting from a blank canvas. It is also about building on existing efforts – expanding and modifying these where necessary, while avoiding duplication. It is also about coordination of effort – pulling together the diverse and often separate capabilities and capacities that exist or are being developed. Building on these existing efforts is a key but difficult task ahead.

10. Logistical support is critical as without it there is no effective response. The international community now needs to develop a work plan, drawing on the outcome and recommendations of this conference and taking into account other on-going efforts such as the G8/8A Action Package 2 Response, the work of the WHO and of the Global Partnership. And to initiate and drive this work plan forward we need to establish an informal group of experts to take the lead on discrete issues.

11. This Wilton Park meeting gathered experts from different fields, with different perspectives and experiences, to start a practical and thorough discussion on how IOs and their member states can effectively come together to implement collaborative action in the event of the use of a biological weapon. Participants identified a large number of interconnected challenges, and recognised that this meeting would be the first of many more to come. In this regard, the Government of Canada has identified *strengthening global*

mechanisms for responding to deliberate use of disease as a priority for its 2018 Presidency of the 31-member Global Partnership Against the Spread of Weapons and Materials of Mass Destruction.

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Intersessional Programme

Submitted by the Bolivarian Republic of Venezuela on behalf of the Group of the Non-Aligned Movement and Other States

I. Introduction

1. NAM reiterates its position expressed on the Working Paper Number BWC/CONF.VIII/WP.26, with regard Intersessional Programme 2017-2020 as follows:

2. The purpose of the intersessional programme is to discuss, and promote common understanding and effective action on those issues identified for inclusion in the intersessional programme by the Eighth Review Conference.

3. Recognizing the need to balance an ambition to improve the intersessional programme within the constraints -both financial and human resources- facing States Parties and the importance of respecting the mandate given by the review Conference to the inter-sessional process and the position of not reopening the fractious debates on this matter.

4. The future new intersessional period should be guided by the following principles and objectives:

(a) The aim of the intersessional programme is to strengthen the effectiveness and improve the implementation of all provisions of the Convention on a voluntary basis.

(b) The BWC forms a composite whole and that, while it is possible to address related issues separately, it is necessary for all the interlinked elements of the Convention to be dealt with in a balanced and comprehensive manner, whether they relate to regulation, compliance or promotion.

(c) Any follow-up or ad hoc mechanism for the Ninth Review Conference should be comprehensive enough to allow an evaluation of the Convention in its entirety. It should take advantage of all the experiences accumulated so far by the States Parties in the framework of the Convention.

(d) Annual meetings should achieve a balance between political and technical follow up of the Convection, including balance between the timing and content of work been assign to the different meetings. Any expert meetings should not be in the detriment of the States Parties Meetings.

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(e) To ensure that Review Conferences remains as the forum with the authority to make decisions within the framework of the Convention.

(f) To facilitate the fullest exchange of equipment, materials and scientific and technological information for the peaceful uses of bacteriological agents and toxins

(g) Although the multilateral negotiations aimed at concluding a non-discriminatory, legally binding agreement is the only sustainable method of strengthening the Convention; the Conference recognizes however the value of the intersessional programme for promoting the objectives of the Convention in all its articles.

(h) To take into account the economic obstacles that the developing countries face, giving continuity to the results of the Review Conferences.

5. The traditional rotation of the Chair of the Annual Meetings among the Regional Groups, to be supported by two annual vice-chairs, one from each of the other two regional groups, should be maintained.

6. All meetings will reach any conclusions or results by consensus.

7. The Ninth Review Conference will consider the work and outcome of these meetings and decide on any further action.

II. Proposals to be inserted in the Final Report of the 2017 MSP

8. The Final Report of the 2017 MSP should include a section entitled "Conclusions". The following proposals should be inserted in this section as follows:

9. In accordance with the decision taken by the Eighth Review Conference as reflected in paragraph 6 of the Final Document BWC/CONF.VIII/4, in order to "seek to make progress on issues of substance and process for the period before the next Review Conference, with a view to reaching consensus on an intersessional process.". States Parties identified the following topics to discuss and promote common understanding and effective action within the intersessional programme (2018-2020) in preparation for the Ninth Review Conference:

(a) Legally binding instrument to strengthen the Convention, including trough verification measures.

- Specific measures design to ensure effective and full implementation of article X which also avoid any restriction incompatible with the obligations undertaking under the Convention, noting that the provisions of the Convention should not be used to imposed restrictions and/or limitations, and on the transfer for purposes consistent with the objectives and the provisions of the Convention of scientific knowledge, technology, equipment, and materials.
- Take into account all previous proposals presented by States Parties and all other relevant material, including the mandate and the work of the Ad Hoc Group established by the 1994 BWC Special Conference.

(b) Institutional Mechanism for International Co-operation in the context of Article X.

- Review of the reports by States Parties on their implementation of Article X, and reports by the ISU on the operation of the database system to facilitate assistance requests and offers;
- Identification of challenges and obstacles to developing international cooperation, assistance and exchange in the biological sciences and technology, including equipment and material, for peaceful purposes to their full potential, and possible means of overcoming these;
- Specific measures for the full and comprehensive implementation of all provisions of Article X, including facilitation of cooperation and assistance in terms of

equipment, materials and scientific and technological information for peaceful purposes, and identification of critical gaps and needs in these areas.

- Format and procedure under the Convention to settle disputes arising from concerns related to the implementation of Article X, including transfer denials that a State Party might consider inconsistent with Article X provisions.
- Measures to strengthen the operation of the database system established by the 7th Review Conference, to ensure that specific, timely and concrete offers of cooperation and assistance under Article X are provided by States Parties in the database and measures to improve reporting on this issue, taking into account the States Parties concerns over the mismatch of the proposed offers and requests, in particular for developing countries States Parties to the Convention.
- Ways and means to target and mobilize resources, including financial resources, to address gaps and needs for assistance and cooperation, in particular from developed to developing States Parties, and from international and regional organizations and other relevant stakeholders.
- Actions on education, training, exchange programmes and other means of developing human resources in the biological sciences and technology relevant to the implementation of the Convention, particularly in developing countries.
- Actions to promote capacity-building, through international cooperation, in biosafety and biosecurity and in the areas of preparedness, response, crisis management and mitigation of outbreaks of infectious diseases and analogous events.
- Actions to strengthen an efficient coordination of cooperation with other relevant international and regional organizations, and other relevant stakeholders.

10. The following topics could also be include on the intersessional programme for 2018-2020:

(a) Review of developments in the field of science and technology related to the Convention.

(b) Strengthening national implementation.

(c) Preparedness, response and assistance.

11. States Parties reiterated that the aim of the intersessional programme is to strengthen the effectiveness and improve the implementation of all the provisions of the Convention on a voluntary basis.

12. States Parties recognized that the BWC forms a composite whole and that, while it is possible to address related issues separately, it is necessary for all the interlinked elements of the Convention to be dealt with in a balanced and comprehensive manner, whether they relate to regulation, compliance or promotion.

13. States Parties noted that the annual meetings should achieve a balance between political and technical follow up of the Convection, including balance between the timing and content of work been assign to the different meetings. States Parties Meetings should continue to be a higher priority.

14. States Parties reaffirmed that Review Conferences remains as the forum with the authority to make decisions within the framework of the Convention.

15. States Parties recognized that multilateral negotiations aimed at concluding a non-discriminatory, legally binding agreement is the only sustainable method of strengthening the Convention. In the absence of detailed treaty provisions for implementation, States Parties emphasized that the ISP should make progress on issues of substance and process in all its meetings for the strengthening the Convention.

16. States Parties, taking into account that the intersessional programme has been to discuss and promote common understanding and effective actions, and with the view to make progress on issues of substance and procedure for the period before the Ninth Review

Conference (2018-2020), emphasized that the Meetings of States Parties should include in their Agendas the consideration of appropriate measures for strengthening the effectiveness and improving the implementation of the Convention with the view to reinitiate discussions on verification measures to be included in a legally binding instrument. States Parties also emphasized that any meeting within the intersessional programme will examine the appropriate measures for strengthening the effectiveness and improving the implementation of the Convention with the view to reinitiate discussions on verification measures to be included in a legally binding instrument as well as NAM proposals related to Article X.

BWC/MSP/2017/WP.22

Sixth Review Conference of the States Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction

6 December 2017

English only

2017 Meeting
Geneva, 4-8 December 2017
Item 6 of the agenda
Issues of substance and process for the period before the next Review Conference, with a view to reaching consensus on an intersessional process

Awareness-raising, education and outreach: recent developments

Submitted by Ukraine, Japan and the United Kingdom of Great Britain and Northern Ireland

I. Introduction

1. The rapid pace of scientific advancements in the life sciences, particularly recent developments in synthetic biology and gene editing, have brought about and promise significant benefits for society on a global scale. However, these considerable developments in life science capabilities also pose the possibility of misuse of peaceful research for nefarious purposes such as bioterrorism. Dual Use Research of Concern (DURC) has been discussed at length among various communities including BTWC States Parties, but it has yet to be agreed internationally how best to tackle the possibility of misuse, while not hindering beneficial scientific advancements.

2. One key factor that will help facilitate the responsible conduct of biological science is ensuring that biosecurity education and awareness is a key component of scientific training early on in the career progression of life scientists and those in other relevant disciplines. It is, however, not just the responsibility of scientists to ensure that life science research is not directed to misuse: in particular, policy makers, other government officials and industry all have a role to play. A relatively new group of stakeholders, the DIY-bio community, also has a responsibility in terms of both biosafety and biosecurity. This is a significant challenge and one that has been much debated in recent years. Scientists, unlike medical professionals, do not have to sign a declaration similar to the Hippocratic Oath in order to be considered competent. Nevertheless, they still have a social and moral responsibility to conduct peaceful and responsible scientific research. There is no globally accepted definition of what this entails, and many scientists do not have awareness or understanding of DURC and the BTWC; consequently, interpretation of 'responsible conduct' can — and does — vary.

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3. Previous Working Papers submitted to BTWC meetings have provided details of measures taken by States Parties nationally for oversight of life science research, educating scientists in biosecurity, raising awareness of the BTWC, and implementing codes of conduct to prevent the misuse of life science research[1]

4. This Working Paper takes forward many of the discussion topics identified previously, and presents some key examples from Ukraine and Japan on their approaches to awareness raising on the BTWC and DURC issues, and to providing biosecurity education to scientists. It builds upon and updates those examples of best practice presented in WP.10 submitted by Ukraine and the United Kingdom to the Eighth Review Conference[2]

II. Developing biosecurity education at university undergraduate level: some lessons from the experience of Ukraine.

5. The main effort in developing biosecurity education at university undergraduate level in Ukraine is the partner Project P633 "Education and Awareness-Raising in Ukraine", funded by the UK's Global Partnership programme in cooperation with the Science and Technology Center of Ukraine, which began in 2014. However, such activities had started in Ukraine in 2007, with the first international biosafety seminar in Kyiv, at which new information on biosafety, biosecurity, and bioethics was provided to university staff involved in teaching biosafety and biosecurity. The EU CBRN Centres of Excellence Project 19 "International Network of Universities and Institutes for Raising Awareness on Dual-Use Concerns in Biotechnology" and project 5327 "Biosecurity Education in Ukraine" included interviews on the status of biosafety and biosecurity education in Ukraine. By the time that Project P633 began, university teaching staff already had a high level of awareness of the relevant issues, as a result of their participation in seminars and conferences. However, while Ukrainian institutions almost always had courses that focused primarily on biosecurity and biosafety, there was no approved separate curriculum on biosafety, biosecurity, and bioethics. Thus, developing specific training materials and guidelines on biosafety, biosecurity and dual-use issues, and putting them into use, was identified as very important and was one of the main aims of Project P633.

6. A website was developed and, together with meetings, was used to make life scientists aware of project activities and to extend the existing network of stakeholders. Initially, the Project was aimed at life science universities. However, during project

[1] For example:

Oversight, education, awareness raising, and codes of conduct for preventing the misuse of bio-science and bio-technology. Working Paper submitted by Japan in consultation with Australia, Canada, Republic of Korea, Switzerland, Norway and New Zealand (BWC/MSP/2008/MX/WP.27).

Outreach and education in the life sciences: Case study in the U.S. Department of Energy National Laboratories. Working Paper submitted by the United States of America (BWC/MSP/2008/MX/WP.25).

Perspective on oversight, codes of conduct, education and awareness raising. Working paper submitted by Pakistan (BWC/MSP/2008/WP.5).

Possible approaches to education and awareness-raising among life scientists. Working Paper submitted by Australia, Canada, Japan, New Zealand, Republic of Korea and Switzerland (on behalf of "IACRSNNZ"), and Kenya, Sweden, Ukraine, the United Kingdom of Great Britain and Northern Ireland and the United States of America (BWC/CONF.VII/WP.26/Rev.1).

[2] Awareness-raising, education, outreach: An example of best practice. Working Paper submitted by Ukraine and the United Kingdom of Great Britain and Northern Ireland (BWC/CONF.VIII/WP.10).

implementation, technical universities with life sciences departments were also brought into the network. By the end of the project, 43 universities in 17 regions (oblasts) of Ukraine had participated in project activities, with a total of over 800 individual participants. The full list of the universities involved in the project is at Annex I.

7. As part of the project three international symposiums were held with over 100 participants, including international experts, representatives of Ukrainian governmental and research institutions, and representatives of 35 Ukrainian universities. Additionally, nine regional meetings were conducted, with over 500 participants, including representatives of governmental and research institutions, as well as over 200 representatives of universities and 300 students.

8. At the outset of the project, Ukraine lacked training materials for biosecurity teaching, and no comprehensive guide to biosecurity was available. The project provided the opportunity to translate into Ukrainian the best available training and reference documents on biosafety, biosecurity, and bioethics (the list of translated materials is at Annex II). All the translated documents are available on the project website www.biohazardcontrol.in.ua. They include the Guide 'Preventing Biological Threats: What You Can Do' and 'Biological Security Education Handbook: The Power of Team-Based Learning', which were produced by the University of Bradford, UK, and are freely available on line; these materials were the cornerstone for developing the teaching of biosecurity in Ukraine.

9. As part of project implementation an educational module on biosafety, biosecurity and bioethics was developed and trialled in three universities: Mechnikov Odessa National University, Dnipropetrovsk Medical Academy, and Vasilkovsk Chernivtsi National University. The universities participated very actively in the project, and used the education module as the basis for developing their own teaching programme on biosafety, biosecurity, and bioethics. The educational module was trialled using Team-Based Learning (TBL) – the first time that this teaching approach had been used in Ukraine. Both teachers and students emphasized the effectiveness of this method and its advantages: improving understanding, the opportunity to use knowledge in a practical way, and team work.

10. The various stakeholders took a close interest in the project, with Government representatives, including from the Ministry of Education and Science, Ministry of Health, Security Service of Ukraine, and Ministry of Defence, participating in project meetings; they emphasized the importance of awareness-raising on biosafety, biosecurity, and bioethics, and expressed their support for the project.

11. The materials developed during project implementation were adopted by universities which participated in the project. 25 universities have formally confirmed that they are incorporating the education module (fully or partially) into their own teaching programmes on biosafety, biosecurity, and bioethics.

12. Several universities had not taught biosecurity issues before the project started. The project provided these universities with the materials and methodological support they needed in order to include biosecurity in their curriculums. Some institutes incorporated biosafety, biosecurity, and bioethics issues into their curriculums for PhD students.

13. Initially, the project team aimed to promote the project, and the materials that had been developed as part of it, among the Government Ministries that were responsible for the curriculums of the life science universities, with a view to pressing for the incorporation of biosafety, biosecurity, and bioethics into the universities' curriculums. However, while the project was being implemented, the new Law on Education № 1556-VII (2014) was adopted, which made Ukrainian universities responsible for their own curriculums; the relevant Ministries can now only advise on this issue. Consequently, it became necessary to work with a large number of life sciences universities. This was the main challenge for the

project, and was overcome successfully. In addition, the Ministry of Education and Science, which supports teaching in the agrarian universities, approved the educational module and training materials, and recommended that these universities should use them.

14. Another major challenge for this project is to ensure that the outcomes achieved are sustainable. The website set up for the project will contribute to this, since it provides a mechanism for sharing the new reference documents and training materials, for participants to communicate through the website forum, and for announcing events of interest.

15. One of the possible tools for continuing awareness-raising efforts is the use of on-line techniques. This will make it possible to organize and conduct interactive teaching, communication, and conferences among the universities previously involved in the project, and with any future partners.

16. Efforts to raise awareness in relation to biosafety, biosecurity, and bioethics will continue in Ukraine beyond completion of the current project. To date, ten universities which participated in the project have proposed to continue collaboration in education and research efforts with the Palladin Institute of Biochemistry, and have signed the necessary agreements. Other universities are also very interested in such collaboration, and it is therefore possible that the number of agreements will grow. Further efforts will be needed to engage with universities moved from territories temporarily not under control of the Government of Ukraine.

17. Successful implementation of the project was not possible without strong support from, and collaboration with, foreign colleagues, who kindly provided the Ukrainian project team with the necessary training materials and shared best practices in teaching biosafety and biosecurity. International collaboration and communication in this field is very important, and will continue to be a key aspect of future efforts.

III. The Experience of Japan

18. In the field of education and awareness-raising on biosafety, biosecurity and bioethics, several projects have been carried out in the past few years in order to raise the awareness of scientists in Japan, in both the public and private sectors.

- In 2013, the Science Council of Japan published a "Code of Conduct for Scientists (revised edition)" to raise awareness of scientists involved in possible dual-use research to prevent misuse or abuse of their research.
- In 2014, the Council published "Dual use research of concern regarding Pathogens Research" focusing more specifically on the prevention of misuse or abuse of research on viruses and toxins.
- Since 2016, a series of Biosecurity Seminars has been organized with the support of the Government. The seminars focus on raising awareness of various stakeholders and exchanging information. They also discussed the challenges facing the BTWC.
- The Ministry of Foreign Affairs of Japan has been raising awareness among scientists by sharing information at relevant meetings on microbiology.
- In 2017, lectures about "Biosecurity, dual use research fields of concern" and "Cutting-edge life science technology and our society" were provided in relevant governmental academic institutions (Distinguished Lecture Series on Information Security Infrastructure), as a part of an educational program for graduate course students.

- In October 2017, the 10th annual meeting of the Japanese Society for Cell Synthesis Research was held in Kyoto. One of the important sessions in that meeting was a biosecurity session co-sponsored by the Government entitled "A new era of artificial gene synthesis and biosecurity safety", in which recent advances in gene synthesis technology were discussed, along with DURC issues. A recent news item about the artificial production of the horsepox virus was also introduced, and provided the participants a basis for fruitful discussion.

IV. Conclusions and Recommendations for States Parties.

19. There are a number of key points that States Parties might draw from these experiences, taking into account what is most appropriate given their own national structures and organizations:

- The need to reach out and engage with stakeholders over a period, obtain their interest and support, and build networks; it is especially important to engage with staff who will deliver the teaching, and students who will study the materials, to ensure that learning will be effective.
- The need to develop appropriate teaching materials, adapting what is already available for their own national circumstances and developing complementary material where necessary.
- The benefits of international collaboration and shared experience and expertise.
- The benefits of using websites and on line techniques to facilitate communication and learning.
- The importance of continuing efforts to ensure sustainability.

Annex I

The universities involved in implementing the project 'Education and Awareness-Raising in Ukraine'

Universities with biological departments (11):

1. Oles Honchar Dnipro National University
2. National Taras Shevchenko University of Kyiv
3. Ivan Franko National University of Lviv
4. National University "Kyiv-Mohyla Academy"
5. Mechnikov Odesa National University
6. Sumy State University
7. Uzhhorod National University
8. Karazin Kharkiv National University
9. Kherson State University
10. Cherkasy Bohdan Khmelnytsky National University
11. Fedkovich Chernivtsi National University

Medical universities (14):

1. Bukovinian State Medical University
2. National Pirogov Memorial Medical University
3. Dnipropetrovs'k Medical Academy
4. Odessa National Medical University
5. Zaporozhye State Medical University
6. Ivano-Frankivsk National Medical University
7. Galyckyi Lviv National Medical University
8. Bogomolets National Medical University
9. National University of Pharmacy
10. Ivan Horbachevsky Ternopil State Medical University
11. Kharkiv Medical Academy of Postgraduate Education
12. Ukrainian Medical Stomatological Academy
13. Kharkiv National Medical University
14. Ukrainian Military Medical Academy

Agrarian and Veterinary Universities (8):

1. Lugansk National Agrarian University
2. Stepan Gzhytskyi National University of Veterinary Medicine and Biotechnologies
3. National University of Life and Environmental Sciences of Ukraine

4. State Agrarian and engineering University in Podilya
5. Poltava state agrarian Academy
6. Sumy National Agrarian University
7. Kharkiv state zooveterinary academy
8. Odessa State Agrarian University

Other (10):

1. National Academy of Security Service of Ukraine
2. National Technical University "Kharkiv Polytechnic Institute"
3. National University of Food Technologies
4. Lviv Polytechnic National University
5. Odessa National Academy of Food Technologies
6. Ternopil Ivan Puluj National Technical University
7. Pavlo Tychyna Uman State Pedagogical University
8. Cherkasy Institute of Fire Safety Named after Chornobyl Heroes of National University of Civil Protection of Ukraine
9. National Forestry University of Ukraine
10. Cherkasy State Technological University

Annex II

The materials translated as part of project implementation

1. Bradford series — two issues
2. Biorisk management. Laboratory biosecurity guidance
3. Responsible life sciences research for global health security. A guidance document
4. Education and Ethics in the Life Sciences
5. Biosecurity — Freedom and Responsibility of Research
6. «National Series» Bradford Disarmament Research Centre Division of Peace Studies, University of Bradford, UK
7. Preventing Biological Threats: What You Can Do
8. Biological Security Education Handbook. The Power of Team-Based Learning